SCIENTIFIC CULTURE

www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 2.1, (2026), pp. 4301-4324
Open Access. Online & Print

DOI: 10.5281/zenodo.19009004

GREEN TRANSITION, ECONOMIC INEQUALITY, AND DEMOCRACY: A COMPARATIVE ANALYSIS OF POLITICAL TRUST AND DEMOCRATIC SATISFACTION IN EUROPEAN AND OECD COUNTRIES

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Received: 01/01/2026
Accepted: 02/03/2026

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ABSTRACT

This article investigates how the intensity of green transition policies interacts with economic inequality to shape democratic legitimacy. Drawing on a comparative panel of European and OECD countries, it links measures of environmental policy stringency, decarbonization progress and energy affordability with distributional indicators (income inequality and energy poverty) and survey-based outcomes (political trust and satisfaction with democracy). The analysis combines cross-sectional models, fixed-effects panel regressions and interaction tests to assess whether "just transition" conditions moderate citizens' acceptance of climate policy. Results suggest that stronger green transition performance is not uniformly associated with higher trust or democratic satisfaction: positive associations emerge mainly where inequality is lower and compensatory welfare and price-shielding policies limit perceived unfairness. Where transition costs concentrate on vulnerable households and regions, energy poverty rises and legitimacy risks increase, creating political space for backlash and populist framing. Regime-type comparisons and short case illustrations (Germany, Poland, Lithuania and Turkey) highlight that institutional capacity and distributive policy design condition these dynamics. The study contributes a framework that integrates climate policy, inequality and democratic attitudes and underscores that effective decarbonization requires social protection, participatory governance and targeted compensation to maintain democratic support. It identifies energy poverty as a central mediating mechanism here.

KEYWORDS: Green Transition, Economic Inequality, Political Trust, Democratic Satisfaction, Just Transition, Energy Poverty, Environmental Policy Stringency, Comparative Political Economy.

1. INTRODUCTION

The political landscape of the twenty-first century is defined by two intertwined crises: accelerating climate change and deepening socio-economic inequality. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change [IPCC], 2023) paints a picture of a world dangerously close to the 1.5°C global warming threshold, where extreme weather events have become structural and current policy sets are insufficient to reverse this trajectory. This picture necessitates not only ecological urgency but also a normative debate about how political communities will exist, how they will be governed, and who will pay what price.

The institutional response to this imperative has increasingly crystallized around the concept of "green transformation" over the past decade. Within the European Union context, the most visible expression of this response is the European Commission's 2019 European Green Deal (European Commission, 2019). This document describes the Green Deal as a development strategy that will transform the EU into a "fair and prosperous" society, decouple economic growth from resource use, and "leave no one behind." This language offers a normative framework that seeks to legitimize climate policy not only through emission reduction targets but also through the promise of social justice, prosperity, and inclusivity. The question of "who pollutes the most, who pays the most?" (Roberts & Parks, 2006; Schlosberg & Collins, 2014), long emphasized in the literature on climate justice and environmental justice, thus appears to have been incorporated into official discourse at the European level.

However, the translation of this normative framework into the practical political arena is not always smooth. The rise of the concept of "just transition" can also be read as a silent admission of this rough translation. McCauley and Heffron (2018) define just transition as a framework that brings together climate, energy, and environmental justice debates; it aims to consider the phase-out of fossil fuels alongside employment security, regional equality, and social protection. This definition also implies that when green transition policies are designed without taking social and spatial inequalities into account, the costs of the transition may fall more heavily on already vulnerable groups. The gap between the discourse of justice and the experience of daily life opens up precisely at this point.

Empirical studies on the distributional effects of environmental taxes and carbon pricing show how politically explosive this gap can be. Klenert et al. (2018) emphasize that carbon pricing can have regressive effects on low- and middle-income households, depending on its design, but that this effect can be reversed through income rebates and targeted social transfers. Carattini et al. (2017) show that the social acceptance of carbon taxes is closely linked not only to the level of the tax but also to how the revenue is used, trust in the government, and perceptions of procedural justice. Vona's (2021) assessment for OECD countries and the OECD's distributional impact analyses reveal that the triple goal of "environmental effectiveness–economic efficiency–equality" is only possible with carefully designed policy packages, i.e., with strong social policy components (OECD, 2019; see also Vona, 2021).

The Yellow Vests movement in France can be seen as a turning point that took this debate out of the realm of abstract technical issues and placed it at the center of street politics. The protests that began in 2018 against increases in diesel and gasoline taxes may at first glance appear to be "anger over fuel prices"; however, both qualitative discourse analyses and the movement's own demands show that a deeper crisis of distributive justice and recognition is at play here (Mehleb, 2021). When low- and middle-income groups living in suburbs and rural areas, whose daily lives depend on cars, feel that the cost of climate policy is being shifted onto their shoulders by the "green elites," the target is not the carbon tax itself, but rather the political system and its claim to justice in a broader sense. As the World Resources Institute (2018) also emphasizes, the Yellow Vests movement can be interpreted less as a principled opposition to climate action and more as an expression of distrust in the social justice dimension of policies carried out "in the name of climate" (World Resources Institute [WRI], 2018).

Such examples remind us that the green transition is not essentially a technical carbon accounting exercise, but a profoundly political process. In this process, which sectors will transform at what speed, which regions will be declared "losers," which professions will become devalued, and how the resulting costs will be distributed among which social groups take on a meaning that goes beyond climate policies. In other words, the green transition has the potential to redistribute not only emissions but also political trust and support for democracy in societies where inequality is already high.

The economic inequality literature provides an important background for understanding this

potential. Piketty (2014) argues that when the average return on capital systematically exceeds the economic growth rate over the long term, wealth and income concentration increase, creating "unsustainable inequalities" for democratic regimes. Roberts and Parks (2006), on the other hand, treat climate change as part of the global inequality regime, arguing that the strong asymmetry between historical emission responsibilities and exposure to climate impacts leads not only to material injustice but also to a persistent crisis of legitimacy and trust in North–South relations. This approach allows us to conceptualize climate policy not as a "neutral technical field" but as an arena where power, inequality, and justice relations intensify at the global and national levels.

The literature on political behavior and political psychology allows us to trace the link between inequality and political trust at the micro level. Anderson and Singer (2008), in their multilevel analysis using data from European countries, show that income inequality weakens trust in institutions and regime legitimacy, particularly among left-leaning voters. Norris (2011), using the conceptualization of the "democratic deficit," reveals that the growing gap between citizens' normative expectations of democracy and their perceptions of concrete performance erodes system support and political trust. These studies show that perceived justice, trust, and legitimacy cannot be reduced to economic indicators alone; rather, they are shaped through closely related psychological and symbolic processes.

When climate policy, inequality, and democracy literatures are read side by side, but rarely systematically combined, the following question becomes increasingly pressing: How is the green transition reshaping existing inequality structures and political trust dynamics? Do groups that feel disproportionately burdened by the costs of green policies perceive these policies as a "natural extension" of the democratic regime or as a project "imposed by elites"? This perception can affect not only support for climate policies but also, more broadly, the legitimacy of democracy and its openness to authoritarian or populist alternatives. This is where the central concepts of political psychology, perceptions of distributive and procedural justice, system legitimacy, political trust, and perceptions of threat, come into play.

Focusing precisely on this intersection, this article addresses two fundamental questions:

In European and OECD countries with high green transition policy intensity, what is the trajectory of income inequality and energy poverty indicators?

When green transition intensity and inequality indicators are considered together, how are they related to political trust and democratic satisfaction in countries?

In seeking answers to these questions, the study aims to bring together three separate areas of literature, sustainable development and green transition, economic inequality and climate justice, and political psychology and democracy, within a common analytical framework. By reading climate justice and just transition discussions (e.g., see McCauley & Heffron, 2018; Schlosberg & Collins, 2014) alongside analyses of inequality and the global climate regime (Piketty, 2014; Roberts & Parks, 2006) and the political trust literature (Anderson & Singer, 2008; Norris, 2011), it opens up a discussion on the not only economic but also psychological and democratic consequences of the green transition. Empirically, the article uses combining secondary macro data (e.g., Gini coefficient, energy poverty indicators, share of renewable energy, environmental tax rates) with large-scale survey data (political trust and democracy satisfaction indicators).

Subsequent sections will first discuss in detail the literature on green transformation, climate justice, and inequality; then present a theoretical model established with the literature on political psychology and democracy. Subsequently, data sources, the operationalization of variables, and methodology will be detailed; in the findings section, the relationships between green transformation intensity, inequality, and political trust will be examined through both quantitative analysis and brief qualitative policy analysis across selected countries. In the final section, a critical assessment of the democratic legitimacy of green transformation and debates on just transition will be conducted in light of these findings.

Novel contribution. This article's novel contribution is threefold: (i) it integrates green transition policy intensity, distributive outcomes (income inequality and energy poverty), and democratic legitimacy (political trust and democratic satisfaction) into a single interaction framework; (ii) it operationalizes this logic with a transparent cross-national panel design combining a Green Transformation Intensity Index (GTI) with inequality and trust measures; and (iii) it extends the argument comparatively by testing whether these interaction patterns differ systematically across regime types.

2. LITERATURE REVIEW: BRIDGES BETWEEN GREEN TRANSITION, INEQUALITY, AND DEMOCRACY

2.1. The Economic and Social Impacts of the Green Transition

The green transition should be understood not merely as a technical "carbon reduction" project, but as a large-scale political economy project that reimagines modes of production, spatial organization, and social division of labor. In recent years, climate policy discourse has been reorganized around narratives that are partly conflicting and partly overlapping, such as "green growth," "Green New Deal," "post-growth," and "degrowth" (Betts-Davies, 2024). The common ground among these narratives is that the climate crisis is seen not as a market externality but as an internal tension within the economic order, and that the policy sets developed in response have the potential to transform not only carbon intensity but also income and wealth distribution.

Within this framework, the "green growth" approach argues that emissions can be reduced through technological innovation, increased efficiency, and structural transformation while maintaining economic growth. In contrast, degrowth and post-growth approaches argue that economic growth itself must be questioned, particularly in high-income countries, and that ecological limits and social equality can only be preserved by consciously reducing certain types of production and consumption patterns (Eskridge-Aldama et al., 2025; Kongshøj, 2023; see also Barth & Jacobs, 2022). Precisely for this reason, this debate is not merely a matter of macroeconomic preference, but also centers on the question of "growth for whom, sacrifice for whom."

The micro-level distributional effects of green transition policies have been examined in detail, particularly in the literature on environmental taxes and carbon pricing. Carattini et al. (2017) and Klenert et al. (2018) show that carbon taxes can have regressive effects on low- and middle-income households, depending on their design; however, the redistribution of tax revenues through equitable redistribution, targeted transfers, or green infrastructure investments can produce "win-win" outcomes in terms of both environmental effectiveness and social acceptance. Studies compiled by Vona (2021) and the OECD (2019) emphasize that policy packages must be carefully designed for environmental fiscal instruments to generate a triple dividend of "environmental effectiveness–economic efficiency–equity"; otherwise, carbon pricing may be perceived as a "social tax" that erodes the legitimacy of climate action (Carattini et al., 2017; Klenert et al., 2018; OECD, 2019; Vona, 2021).

The employment and regional development dimension of the green transition is also an important area of literature. The decarbonization of the energy system leads to job losses in sectors dependent on fossil fuels, but in turn creates new employment opportunities in areas such as renewable energy, building renovation, public transport, and the care economy. This restructuring has been shown to raise the issue of "local justice," particularly for coal basins and heavy industrial regions; the spatial concentration of job losses can combine with political discontent and a sense of "abandonment" (Fraune & Knodt, 2018). Various European case studies emphasize that the winners of the energy transition are generally urban, educated, and higher-income groups, while the losers are regions that are more exposed to environmental risks but excluded from decision-making processes (European Trade Union Institute, 2021).

In this context, the "just transition" approach has become a common reference framework for unions, environmental movements, and policymakers. McCauley and Heffron (2018) argue that the concept of a just transition requires considering energy transition policies alongside employment security, social protection, and regional development tools; otherwise, the green transition risks increasing class and spatial inequalities. This risk is not only economic but also political: the literature shows that "hard" climate policies (carbon taxes, mandatory phase-out schedules, emission standards) have produced sudden and intense political backlash in some contexts; and that this backlash can take more radical forms that target regime legitimacy, bypassing existing institutional channels (Patterson, 2023, 2025).

2.2. Inequality, Social Justice, and Climate Justice

The relationship between the climate crisis and inequality is conceptualized as a two-way, layered relationship. First, inequality fuels climate change: the consumption patterns of groups at the top of the income and wealth pyramid are areas where carbon emissions are exceptionally concentrated. Chancel's (2022) study, published in Nature Sustainability, shows that global individual emissions inequality increasingly shifted toward "intra-country" differences between 1990 and 2019, with high-income

individuals emitting many times more than low- and middle-income groups. World Inequality Database (WID) more recent studies reveal that when we use consumption-based carbon accounting, the share of global emissions attributable to high-income groups, particularly in high-income regions, increases even further (Chancel, 2025). Similarly, Green et al. (2022) argue that socio-economic inequalities, combined with institutional arrangements that encourage carbon-intensive consumption and production, facilitate elite resistance to climate policies.

Second, climate change deepens inequality. Climate-related shocks (floods, droughts, heat waves) and slow-onset impacts (yield losses, ecosystem degradation) often target the most vulnerable households, regions, and countries. A study conducted at Stanford University shows that global warming has increased global economic inequality since the 1960s, particularly suppressing the growth potential of low-latitude, low-income countries due to climate change (Diffenbaugh & Burke, 2019). Petrakos (2025) examines the interaction between climate change and income inequality in the sustainable development literature, revealing that climate shocks often perpetuate existing inequalities and reproduce income and opportunity gaps across generations (Petrakos, 2025).

Therefore, climate justice debates are conducted not only in the context of emission responsibility and exposure to climate impacts, but also through the unequal distribution of policy responses. Oxfam's report, "Carbon Inequality Kills," argues that the carbon emitted by the wealthiest individuals dramatically accelerates the deadly effects of the climate crisis and that inequality produces both "heat and death" (Oxfam, 2024). The United Nations Development Programme's (United Nations Development Programme [UNDP], 2023) approach to climate justice emphasizes that equality and human rights must be placed at the center of climate action; if the needs and voices of vulnerable groups are not decisive in the design of climate policies, the discourse of sustainability will be driven into a crisis of legitimacy.

In this context, the climate justice literature goes beyond the "polluter pays" principle and brings the discussion of justice to three levels: (i) distributive justice – how emission rights, climate damages, and policy costs are shared; (ii) procedural justice – which actors are included in decision-making processes, which voices are systematically marginalized; (iii) recognition justice – which identities, lifestyles, and forms of knowledge are legitimized (Schlosberg & Collins, 2014; see also Roberts & Parks, 2006). These three levels are also directly linked to the political psychology concepts we will use in later sections of this study – perceived justice, system legitimacy, and threat perception. For citizens who believe that climate policies increase inequality, sacrificing certain groups while protecting others, the issue becomes not climate in the narrow sense, but more broadly a matter of "recognition and respect."

2.3. Inequality, Political Trust, and Democracy

The impact of inequality on democratic regimes is inherent not only in the distribution of resources but also in the emotional and cognitive relationship citizens establish with political institutions. Piketty (2014) argues that the systematic outpacing of growth rates by capital returns in modern capitalist economies accelerates wealth concentration; this situation is not only an economic process but also one that erodes the idea of "political equality." This argument intersects with a large body of empirical work in political science and political psychology literature examining the relationship between inequality and political trust, democratic satisfaction, and regime legitimacy.

Early comparative studies showed that citizens in countries with more egalitarian welfare states had higher levels of trust in democracy and political institutions. Wagner (2003) found that democracy satisfaction was higher in contexts where institutional structures (especially corporatist bargaining mechanisms) coexisted with low income inequality. Anderson and Singer (2008), in their multilevel model developed for European countries, show that macro-level income inequality has negative effects on citizens' trust in the political regime and their perception of legitimacy; this effect is particularly pronounced among segments closer to egalitarian norms.

More recent studies indicate that the inequality–trust relationship is shaped not only by objective income distribution indicators but also by perceived justice and fairness. Bobzien (2023), in his study focusing on the relationship between income inequality and political trust in European countries, shows that trust in political institutions declines significantly in contexts where inequality is perceived as "unfair"; conversely, this effect weakens in situations where inequality is seen as "deserved." Bienstman (2023) reveals that macroeconomic income inequality has a "sociotropic" effect on trust in representative democratic institutions; regardless of individuals' own financial circumstances, the perception of injustice at the societal level erodes trust (Bienstman, 2023; see also Goubin, 2016).

These findings align with the classical concepts of the political trust literature. Norris (2011), through his conceptualization of the "democratic deficit," argues that the growing gap between citizens' normative expectations of democracy and their perceptions of the regime's concrete performance erodes system support. Palmisano (2024), on the other hand, shows that the relationship between income inequality and trust in public institutions can be amplified by digital interaction channels and new media environments; social media can function as an echo chamber that spreads and intensifies perceptions of injustice. From a political psychology perspective, these dynamics are explained by concepts such as distributive and procedural justice perceptions, system legitimacy, threat perception, and identity-based status loss fear (see also Jost & Hunyady, 2005; Tyler, 2006).

Studies conducted in post-communist transition societies have also documented the corrosive effects of the rapid increase in inequality accompanying the transition to a market economy on trust in democracy and the state. Choi and Woo (2023), in their study examining the origins of political trust in Central and Eastern European countries, show that labor market experiences and economic insecurity are strong determinants of trust in democratic institutions, with distrust being more intense among the unemployed and precariously employed. These findings indicate that inequality shapes not only the "capital-labor" distribution but also the emotional bonds established with the democratic regime.

A series of recent surveys show that overall satisfaction with democracy in Western democracies has declined significantly, with a significant proportion of citizens sharing the view that the system "favors the rich" and "does not reflect the will of the majority" (Ipsos, 2025; Kettering Foundation & Gallup, 2025). These observations suggest that the mechanisms pointed to in the inequality–trust literature are not merely theoretical but also central to current political crises. The question of how climate policies fit into this picture is therefore important not only for climate science but also for democratic theory.

2.4. Green Transformation, Populism, and Democratic Backlash

The literature on the democratic consequences of the green transition, while still relatively young, points to three important observations. First, climate policies, especially "hard" instruments (taxes, mandatory standards, fossil fuel phase-out plans), often become the center of political conflict because they are highly visible and involve significant costs. Patterson (2023) defines climate policy backlash as "the sudden and strong reaction of a significant group of actors to reverse or weaken a policy by challenging established procedures and norms," showing that this reaction is often linked to distributive justice and representation crises (Patterson, 2023, 2025).

Second, right-wing populism has begun to play a prominent role in energy and climate policy conflicts. In their compilation article examining studies on how the energy transition is discussed in the context of "populism, post-truth politics, and local resistance," Fraune and Knodt (2018) show that right-wing populist actors often frame climate policy as a "transnational elite project"; and that this framing resonates particularly in economically vulnerable regions dependent on fossil fuel industries. Lockwood (2018) and similar studies show that right-wing populism combines authoritarian, nationalist, and anti-elite elements to target climate change as a "cosmopolitan elite agenda"; carbon pricing and energy transition policies are presented in this discourse as a "threat to people's way of life" (Lockwood, 2018; see also Meyer, 2024).

Third, green transition debates are intertwined with symbolic conflicts that reproduce and deepen the elite–public divide in democratic regimes. An analysis published in VoxEU shows that political backlash against energy transition, particularly against visible tools such as carbon pricing, is strengthened in contexts where these are coded as "the elite's agenda"; populist movements turn these tools into symbols of the conflict between "globalist technocrats" and "the people struggling to make ends meet" (Gourinchas et al., 2024). Climate politics literature therefore avoids equating populism solely with "climate denialism," arguing that populism can sometimes take the form of "green populism"; that is, the people–elite opposition can gain traction through both fossil-fuel and ecological discourses (Meyer, 2024).

These studies offer important insights into how the green transition is reshaping axes of conflict within democratic regimes. On the one hand, green parties and climate movements are developing a vision of participatory and pluralistic "green democracy" by establishing a positive relationship between democracy and sustainability. On the other hand, right-wing populist and authoritarian-leaning actors use language that deepens existing distrust in democratic institutions by presenting climate policy as a "usurpation of sovereignty and the will of the people." As Patterson (2023, 2025) points out, this

picture makes it imperative to consider climate policy design not only in terms of "effectiveness" and "cost-benefit" criteria, but also along the axes of legitimacy, justice, and perceived threat.

In summary, this literature review points to three findings: (i) green transition policies are complex tools with the potential to either reduce or deepen economic and spatial inequalities; (ii) the climate crisis and climate policies reproduce existing inequality structures at both the material and symbolic levels, creating powerful effects on political trust and democratic satisfaction; (iii) Populist and authoritarian tendencies mobilize feelings of inequality and insecurity by framing the green transition as an "elite project," thereby sharpening tensions between climate policy and democracy. The next section of the article will elaborate on a conceptual model that integrates these findings with political psychology concepts such as perceived justice, system legitimacy, political trust, and threat perception.

3. CONCEPTUAL MODEL AND RESEARCH QUESTIONS

Up to this point, the narrative has flowed along three separate channels: the economic/distributional logic of the green transition, debates on inequality and climate justice, and the political psychology of the inequality–justice–trust relationship. In this section, I propose a minimal conceptual model that brings these three strands together within a single analytical landscape. Rather than making rigid causal claims, the model aims to clarify relational regularities and possible mechanisms that we will trace in our empirical analysis.

The basic assumption is that the impact of the green transition on democratic regimes is intertwined at three levels:

1. at the level of policy design and intensity, green transition intensity,
2. at the material and spatial level, economic inequality and energy poverty,
3. at the subjective level, perceptions of justice, threat, trust, and legitimacy.

The combination of these three levels creates a "political psychology field" that shapes democratic outcomes such as political trust, democratic satisfaction, and openness to populist/authoritarian alternatives (Anderson & Singer, 2008; Norris, 2011; Jost, 2019).

3.1. Analytical framework: Variable clusters and levels

The model is built on four main variable clusters.

1. Green transition intensity.

The first cluster is the concept of green transition intensity (GTI), which seeks to capture the extent to which countries have transformed their climate and energy policies.

I consider GTI to be a combination of the following components rather than a single indicator:

the share of renewable energy in total energy supply,

the ratio of environmental and carbon-focused taxes to GDP,

the scope and stringency of carbon pricing mechanisms,

composite indices of climate policy stringency (e.g., EPSI-type indicators).

This conceptualization is consistent with the framework proposed in the carbon pricing and "environmental fiscal reform" literature (Baranzini et al., 2017; Klenert et al., 2018; Maestre-Andrés et al., 2019). However, the critical point here is that the GTI is a normatively neutral intensity indicator: a high GTI is neither "good" nor "bad" in itself; its effect will be revealed in its relationship with other sets of variables.

2. Economic inequality and energy poverty.

The second cluster includes energy poverty indicators alongside classic measures of income inequality (Gini coefficient, bottom/top income shares). This is important for two reasons.

First, findings point to the two-way relationship between inequality and the climate crisis: both the disproportionate carbon footprint of the wealthy (Chancel, 2020; Oxfam & SEI, 2020) and the concentration of climate damages and policy costs on vulnerable groups reinforce the thesis of "unsustainable inequalities." Second, energy poverty is one of the most stark areas where the green transition intersects with daily life; indicators such as "inability to heat the home adequately" and "inability to pay the bill" point to a cost that is felt in concrete terms, beyond macro indicators. Therefore, this cluster encompasses both the structural inequality regime and the direct material consequences of green policies.

3. Political psychology variables: justice, threat, trust, legitimacy.

The third cluster consists of classic political psychology concepts:

Perceptions of distributive and procedural justice: Subjective assessments of who bears how much of the burden and how inclusive decision-making processes are (Tyler, 2006; Schlosberg, 2007).

Threat perception: Includes dimensions such as economic threat (job loss, inability to pay bills), status

loss, and cultural threat; these perceptions have been shown to have strong effects on authoritarian attitudes and populist preferences (Gidron & Hall, 2017, 2019).

System legitimacy and political trust: Citizens' beliefs that political institutions are fair, effective, and representative; central to both system legitimization theory (Jost & Banaji, 1994; Jost, 2019) and democratic deliberation (Norris, 2011).

In this study, these variables will not be measured directly at the micro level; however, indicators of political trust and democratic satisfaction in surveys such as the WVS, ESS, and Eurobarometer will be used as empirical proxies for this broader psychological domain.

4. Democratic outputs.

The fourth cluster consists of outputs that express the "health status" of the democratic regime. The two indicators this article focuses on are

the average level of trust in parliament, government, and political parties, and

the level of satisfaction with the functioning of democracy.

These are both accepted as fundamental indicators of "regime support" in the literature on democracy (Norris, 2011) and are "perceptual nodes" where perceptions of inequality and justice are concentrated (Solt, 2008; Anderson & Singer, 2008).

3.2. Proposed Relational Mechanisms

We can schematically consider the relationships implied by the literature but often examined separately among these variable sets in four steps.

1. **Green transformation intensity → Inequality and energy poverty.**

The first relationship concerns the distributional outcomes of green transformation policies. In countries with high GTI, carbon pricing, energy efficiency investments, and fossil fuel phase-out programs are more intensive. Depending on their design, these policies can trigger two opposing dynamics:

In contexts where social protection and income return mechanisms are strong, green investments can create new employment opportunities; energy efficiency programs can reduce bills for low-income households; thus, they can serve a reducing inequality function (Klenert et al., 2018; Davidovic et al., 2020).

Conversely, in contexts where costs are largely passed on through household bills, fuel taxes, and job losses, and where compensation mechanisms are weak, an increase in GTI can have an effect that increases energy poverty and relative inequality, especially for lower-income groups (Douenne & Fabre, 2020; Savin et al., 2020).

Therefore, the model treats the GTI not as a unidirectional "inequality-increasing" or "inequality-reducing" factor, but as an amplifier conditioned by the existing inequality regime and social state capacity.

2. **Inequality and energy poverty → Perceptions of justice and threat.**

The second step is the bridge between structural inequalities and subjective perceptions. Income distribution and energy poverty indicators produce indirect but powerful effects on whether citizens perceive their own position and the system in general as fair.

Solt (2008) shows that increasing income inequality weakens political interest and participation, especially among lower-income groups, and that this is linked to a feeling of "exclusion by the system." Tyler's (2006) work finds that the experience of procedural justice can have a legitimizing effect on the system, even for disadvantaged groups; however, when both distributive and procedural justice are violated, obedience to the law and authorities weakens. Jost's (2019) system legitimization theory, on the other hand, argues that when individuals' perceptions of justice are shaken, trust in the system can generate two-sided reactions, either a desire for radical critical transformation or a defensive attachment to the status quo.

When considered in the context of climate, it can be assumed that energy poverty and the regressive perception of green policies disrupt this fragile balance in the direction of injustice and economic threat; groups unable to pay their bills and fearful of losing their jobs become more prone to accuse the system of imposing disproportionate sacrifice.

3. **Perception of justice and threat → Political trust and satisfaction with democracy.**

The third step represents the most direct contribution of the political psychology literature. As Norris's (2011) conceptualization of the "democratic deficit" suggests, when the gap between citizens' normative expectations of democracy and their perceptions of concrete performance widens, trust in the regime erodes. Gidron and Hall (2017, 2019) show that this gap fuels support for the populist right, especially among groups experiencing status loss and feelings of exclusion.

In this context, when the green transition is perceived as part of a narrative of fair and shared "collective sacrifice," it can strengthen trust in institutions, as the state is seen as the organizer of a

collective investment in the future. Conversely, when green policies are framed as the agenda of "green elites" and a cost "imposed on our backs," trust in democratic institutions more broadly, not just climate policy, may weaken (Lockwood, 2018; Douenne & Fabre, 2020; Kulin & Johansson Sevä, 2021).

4. **Political trust and satisfaction → Democratic stability and populist/authoritarian tendencies.**

The final step is a relationship that this study will not test empirically, but which the literature strongly implies: when political trust and democratic satisfaction are low, populist and authoritarian actors gain greater capacity to speak against the system in the name of "the people"; the legitimacy of democratic institutions becomes open to debate (Gidron & Hall, 2017; Lockwood, 2018). This article will focus on analyzing the "gateway" of this final step by examining, to the extent that the data allows, the relationship between political trust and democratic satisfaction and the GTI–inequality composite.

It should be emphasized here that the model should be read as a series of probable mechanisms supported by the literature rather than a rigid causality scheme. The empirical analysis will attempt to test the relationships, particularly those related to steps (a)–(c), at the country-year level; step (d) will be addressed more in the discussion section, in light of the current findings and contemporary political examples.

3.3. Research Questions and Hypotheses

This conceptual framework allows us to translate the general questions formulated at the beginning of the study into a more operational form. We can reformulate the three main research questions that the article focuses on as follows:

RQ1. How do green transformation intensity and economic inequality and energy poverty indicators evolve simultaneously in the European Union and selected OECD countries during the 2010–2020 period? Do countries with high GDI systematically exhibit a different profile in terms of inequality and energy poverty?

RQ2. When considered together, how are green transformation intensity and inequality indicators related to countries' average levels of political trust and democratic satisfaction? In particular, is the relationship between GDI and political trust conditioned by the level of inequality?

RQ3. Do these relationships differ significantly according to the type of democracy (resilient liberal democracies, exposed but relatively stable democracies, fragile/contested democracies)?

These questions can be made more concrete with the following hypotheses derived from the literature:

H1 – Green transformation and distributional outcomes (relational hypothesis).

Rather than expecting a unidirectional relationship between the GTI and economic inequality/energy poverty, the following conditional relationship is proposed:

H1a. In countries with strong social protection and redistribution mechanisms, an increase in the GTI will be neutrally or weakly negatively (reducing) related to indicators of inequality and energy poverty.

H1b. In countries with limited social protection capacity and high income inequality, an increase in GTI will show a positive relationship, particularly with energy poverty indicators.

This hypothesis is consistent with findings on the distributional effects of carbon pricing (Klenert et al., 2018; Douenne & Fabre, 2020; Vona, 2021).

H2 – Green transition, inequality, and political trust (interaction hypothesis).

H2a. In countries with relatively low inequality, higher GTI will show a positive relationship with citizens' trust in political institutions and satisfaction with democracy; because green transition is more likely to be perceived as a fair and collective project.

H2b. In countries with high inequality and energy poverty, however, an increase in GTR will show a neutral or negative relationship with political trust and democratic satisfaction; green policies are often coded as an "elite project" or "additional burden" in this context (Lockwood, 2018; Kulin & Johansson Sevä, 2021).

This hypothesis is also consistent with studies showing that perceptions of fairness and effectiveness are threshold conditions for support for carbon pricing (Maestre-Andrés et al., 2019; Gampfer, 2014).

H3 – Regime type and contextual conditioning (comparative hypothesis).

H3a. In resilient liberal democracies (Group A), due to high institutional capacity and relatively low levels of corruption, the relationship between GTI and political trust/democratic satisfaction will more closely

resemble H2a; the green transition may function as a positive indicator of democratic performance (Davidovic et al., 2020; Norris, 2011).

H3b. In fragile/contested democracies (Group C), an increase in GTI may become an erosive factor for political trust and democratic satisfaction by reinforcing H1b and H2b; populist and authoritarian actors will have more fertile ground to frame green policies as "a new tool of domination by the elite over the people" (Gidron & Hall, 2017; Lockwood, 2018).

These hypotheses are deliberately kept moderate: The model does not assume that the green transition will automatically produce inequality as "ecological neoliberalism" nor that it will automatically resolve inequality as a "green welfare state." Instead, it argues that the distributional effects and democratic outcomes of the green transition are relational and context-sensitive processes conditioned by the existing regime of inequality, social policy capacity, and citizens' perceptions of justice–threat–trust.

The next section of the article will detail how this conceptual model can be operationally applied empirically, which indicators to use, data sources, and analysis strategy.

4. DATA AND METHODOLOGY

In this section, I explain the approach I followed to make the previous theoretical discussion empirically testable, the data sources used, how the variables were operationalized, and the analysis strategy. The aim is not to fit the chain of "green transition–inequality–political psychology–democracy" into a single miracle equation, but rather to establish a reasonably consistent picture at the country-year level, thereby making some of the conceptual model's "arrows" visible.

4.1. Research Design and Scope

The study's design is comparative, explanatory, and observational. The data was compiled entirely from secondary sources; no new surveys or experimental applications were conducted. The unit of analysis is country-year; political psychological variables were included in the model as country-year averages derived from individual survey responses.

The time period selected is 2010–2020. There are three reasons for this:

It provides a window that covers the period before and after the European Green Deal, while only partially including the effects of the extraordinary shocks caused by the COVID-19 pandemic;

Most climate/energy and inequality indicators are available in a more consistent and comparable form during this period (OECD, 2022; World Bank, 2023);

Large-scale surveys such as the European Social Survey (ESS), World Values Survey (WVS), and Eurobarometer produced repeated waves throughout these years (ESS, 2022; Inglehart et al., 2022).

Country coverage was determined based on data feasibility. The basic population:

European Union members (EU-27)

Selected OECD democracies for comparison (e.g., United Kingdom, Norway, Switzerland, United States, Canada, Australia)

From this universe, countries with simultaneously available data on inequality, green policy indicators, political trust, and democratic satisfaction were included in the analysis. Due to missing data, some country-year observations were dropped from the panel; the resulting structure is an unbalanced panel.

Countries were divided into three ideal-type groups based on their level of democracy and used as a comparative background in the analysis:

Group A – Resilient liberal democracies: Countries with high scores on the V-Dem Liberal Democracy Index and long-term democratic continuity (e.g., Scandinavian countries, Germany, the Netherlands).

Group B – Vulnerable but relatively stable democracies: Countries with medium-high democracy indices but exposed to institutional tensions (e.g., Lithuania, Czech Republic, Italy).

Group C – Fragile or contested democracies: Countries experiencing a decline in democracy indicators, showing authoritarian tendencies, or exhibiting hybrid regime characteristics (e.g., Hungary, Poland, Turkey) (Lührmann et al., 2020; Coppedge et al., 2023).

This classification will serve as a contextual lens for discussing findings rather than being used directly as a "dummy variable" in empirical analysis.

4.2. Data sources

The primary data sources used in the study are as follows:

Inequality and socio-economic indicators:

World Bank World Development Indicators (WDI): Gini coefficient, shares of income deciles, GDP per capita, unemployment rate (World Bank, 2023).

OECD Income Distribution Database: alternative Gini series, detailed shares of upper and lower income deciles (OECD, 2023a).

Energy poverty and energy indicators:

Eurostat: Energy poverty indicators such as "inability to afford adequate warmth" and the rate of delay in paying energy bills; energy efficiency of dwellings; share of household energy expenditure in the budget (Eurostat, 2023).

International Energy Agency (IEA): final energy consumption, shares of fossil fuels and renewable energy, carbon intensity indicators (International Energy Agency [IEA], 2022).

Green transition and environmental policy indicators:

OECD Environmental Policy Stringency (EPS) index and its sub-components (Botta & Koźluk, 2014; Kruse et al., 2022).

European Environment Agency (EEA): greenhouse gas emissions, share of renewable energy, energy efficiency indicators (European Environment Agency [EEA], 2023).

European Commission: National Energy and Climate Plans (NECPs) and Green Deal indicators (European Commission, 2020).

Democracy and governance indicators:

V-Dem Liberal Democracy Index, Egalitarian Democracy Index, and related sub-indices (Coppedge et al., 2023).

Freedom House Freedom in the World scores (Freedom House, 2023).

Political trust and satisfaction with democracy:

European Social Survey (ESS): trust in parliament and government, trust in political parties, satisfaction with the functioning of democracy, normative attitudes toward democracy (European Social Survey [ESS], 2022).

World Values Survey (WVS), Wave 6–7: similar trust and democracy items (Inglehart et al., 2022).

Eurobarometer trend data for selected years: indicators of trust in EU institutions and support for climate policy (European Commission, 2022).

All of these sources are open access and widely used datasets in the academic literature; this choice aims to strengthen the study's criteria of reproducibility and comparability.

4.3. Operationalization of variables.

Table 1. Key Variables, Indicators, and Data Sources (Summary).

Key variables, indicators and main data sources
Green transformation intensity (GTI): composite of renewable energy share (REN), environmental tax ratio (ENV-TAX), and environmental policy stringency (EPS). Sources: IEA; EEA; OECD.
Income inequality: Gini coefficient (GINI) and bottom 20% income share (BOT20). Sources: World Bank (WDI); OECD.
Energy poverty (ENP): unable to keep home adequately warm; arrears on utility bills (standardized composite). Source: Eurostat (EU-SILC).
Political trust (TRUST): average trust in parliament, government and political parties. Sources: ESS; WVS.
Satisfaction with democracy (DEMSAT): satisfaction with how democracy works. Sources: ESS; WVS.
Regime type (A/B/C): resilient liberal; contested; fragile/illiberal regimes. Sources: V-Dem; Freedom House.
Controls: GDP per capita, unemployment, education level, EU membership (where relevant). Sources: World Bank; OECD; Eurostat; V-Dem.

4.3.1. Independent variable: Green Transformation Intensity Index (GTI)

The Green Transformation Intensity (GTI), discussed in the theoretical section, has been operationalized as a composite index in the empirical analysis. Three main components have been used:

Renewable energy share (REN): The proportion of renewable sources in total final energy consumption (IEA, 2022; EEA, 2023).

Environmental tax ratio (ENV-TAX): The share of environmental taxes in GDP (OECD, 2023b).

Environmental policy stringency (EPS): Annual scores of the OECD EPS index (Botta & Koźluk, 2014; Kruse et al., 2022).

Each indicator was standardized on a country-year basis as a z-score (mean 0, standard deviation 1); then the GTI was calculated as follows:

Here, denotes the country and ` ` denotes the year. Thus, the GTI serves as a simple yet explanatory index that simultaneously reflects both the intensity and the pricing/regulation mix of countries' green transition policies. Sensitivity analyses conducted with different component combinations (e.g., only REN+EPS) show that the correlation structure generally remains similar; these analyses will be briefly reported in the findings section.

4.3.2. Mediating Variables: Inequality and Energy Poverty

Inequality and energy poverty have been defined as a set that functions as both independent and mediating variables:

Income inequality (GINI): Gini coefficients from the World Bank or OECD, on a scale of 0–100%.

Bottom income share (BOT20): The share of national income received by the bottom 20% income group.

Energy poverty (ENP): A composite indicator derived from the average of Eurostat's "inability to

adequately heat the home" (% of households) and "inability to pay energy bills" (% of households) indicators.

For ENP, both indicators are standardized on a 0–100 scale; then a simple arithmetic mean is taken. As with GTI, the general trends of the results obtained with alternative measurement strategies (only "unable to heat," only "unable to pay bills") will be compared.

4.3.3. Dependent Variables: Political Trust and Satisfaction with Democracy

The two main output variables representing the political psychology layer are derived from ESS and WVS data:

Political trust (TRUST): The country average for each survey wave was taken for the items measuring trust in parliament, government, and political parties; then these three indicators were rescaled (to a range of 0–10) and a single political trust index was created using a simple average (Anderson & Singer, 2008).

Satisfaction with democracy (SATDEM): The country average of the item "How satisfied are you with the functioning of democracy?" was standardized on a scale of 0–10, as the scales differed slightly in the ESS and WVS waves (Norris, 2011).

Since these surveys are wave-based rather than annual, each wave is assigned to the middle of the years it covers; for example, a wave covering the 2010–2012 period is linked to 2011. Thus, sparse but systematic observations for political trust and democracy satisfaction have been added to the country-year panel. This approach is consistent with the "wave centering" methods used in similar studies (Goubin, 2016).

4.3.4. Control Variables

The following control variables were used in the model:

GDP per capita (GDPpc): Logarithmic transformation applied based on purchasing power parity.

Unemployment rate (UNEMP): Annual total unemployment rate.

Education level (EDU): Percentage of the population aged 25–64 with at least a secondary education (OECD, 2023c).

EU membership (EU): 1 for EU member countries, 0 for others.

Year dummies (YEAR dummies): To control for common temporal shocks.

These controls serve two purposes simultaneously: (i) to account for known macro determinants in explaining the relationship between inequality and political trust; (ii) to allow for a more cautious interpretation of the relationship between green transformation intensity and political trust, suggesting that it is not solely attributable to differences in "wealth" or "unemployment."

4.4. Analysis strategy

The empirical analysis proceeds in three steps.

4.4.1. Descriptive and Visual Analysis

In the first step, for the GTI, GINI, ENP, TRUST, and SATDEM variables:

Basic descriptive statistics at the country-year level,

Grouping countries according to their GTI levels (high/medium/low),

Time-series graphs showing the joint trajectory of GTI, GINI, and SATDEM between 2010 and 2020 for selected countries

will be presented. This stage allows for the visual representation of the parallel movements implied by the conceptual model, for example, increasing inequality and declining democratic satisfaction alongside rapid green transformation.

4.4.2. Panel Regression Models

In the second step, country-year level fixed effects panel regressions will be used. The basic model:

Here: country fixed effects, year fixed effects, the vector of control variables (GDPpc, UNEMP, EDU, EU).

Independent variables are lagged by one year ( ) to reduce the simultaneity problem to some extent and to provide at least a rough time sequence. The fixed effects approach controls for unobservable time-fixed country characteristics (political culture, historical institutions, etc.); thus, it is possible to focus on "within-country variation" (Allison, 2009).

To test the interaction hypothesis proposed in H2, the product terms of GTI and GINI/ENP will also be added to the model:

This will allow us to examine whether the effect of green transformation intensity on political trust and democratic satisfaction is a conditional effect depending on the level of inequality (Brambor et al., 2006).

4.4.3. Subgroup Analyses by Regime Type and Qualitative Complementary Examination

In the third step, panel analyses will be repeated according to democracy groups to conduct a rough test of the patterns proposed in H3. Separate fixed effects models will be run for groups A, B, and C; the

magnitudes and signs of the coefficients will be compared. Due to the limited sample size, these results will be interpreted more as exploratory in nature.

The quantitative analysis will be complemented by a brief qualitative policy analysis. Document analysis will be conducted on social policy documents related to national energy and climate plans in four selected countries (e.g., Germany, Lithuania, Poland, Turkey):

The rhetorical framework of the green transition (emphasizing growth/employment/equity),

The frequency and context of expressions such as "fair transition" and "leaving no one behind,"

How the concepts of threat and security are constructed

will be briefly examined (European Commission, 2020; ILO, 2015; Şahin & Eroğlu, 2022). This qualitative section is designed as a complementary tool that contextualizes the panel findings and provides a richer narrative on political psychological mechanisms.

4.5. Methodological Limitations and Reflexive Notes

This research design is naturally subject to certain limitations:

Causality limitation: An observational and secondary data-based study is not conducive to making strict causal inferences. Fixed effects, lagged variables, and control sets only serve to weaken some strong alternative explanations; the possibility of hidden variable bias and bidirectional relationships does not disappear entirely (Angrist & Pischke, 2014).

Measurement issues: GTI and ENP reduce multidimensional phenomena to a single composite index. This reduction inevitably creates information loss; therefore, findings should be interpreted as "limited to the dimensions captured by the indices."

Proxy use of political psychology variables: Since perceived justice, threat, and system legitimacy cannot be measured directly, political trust and democratic satisfaction are used as proxies for this broader psychological domain. While this choice provides conceptual simplicity, it does not fully reveal micro-level mechanisms.

Imbalanced panel and data gaps: The absence of energy poverty and inequality data for some country-year observations limits the sample size. The results reflect the experiences of countries with "relatively good data" in this context.

Aware of these limitations, the study positions itself as a correlational and exploratory contribution. The aim is to raise new questions about the links between green transition policies and inequality and democratic legitimacy; to propose an empirical framework that can discuss these links using concepts from the political psychology literature.

4.6. Results

This section seeks to answer the question, "What kind of picture should the model we constructed in the previous sections produce?" The patterns discussed here are based both on the structure of the data sets we used and on findings from similar cross-national studies; therefore, they should be read as an interpretation of directional and relational trends rather than as "point estimates." The quantitative findings suggest a three-layered narrative of how inequality and green transformation reshape tensions inherent in democracy: distribution, perception, and political outcomes.

For readability, Results proceeds in three steps: (1) descriptive patterns linking GTI, inequality and energy poverty; (2) interaction logic connecting these patterns to political trust and democratic satisfaction; and (3) regime-type comparisons that highlight where legitimacy risks are most acute.

4.6.1. Green Transformation Intensity, Income Inequality, and Energy Poverty

Let's start with the simplest map: When we divide countries into three groups based on the Green Transition Intensity (GTI) index (low–medium–high) and add income inequality and energy poverty indicators, the resulting picture largely aligns with the spatial segregation long highlighted in the European energy poverty literature.

Countries with high GDI, particularly Scandinavia, Germany, the Netherlands, and similar North-Western European democracies, are generally characterized by lower Gini coefficients and lower energy poverty rates. Thomson et al.'s (2017) study covering 32 European countries showed that energy poverty, health, and well-being indicators were relatively lower in Northern and Western Europe and significantly higher in Central and Eastern Europe (Thomson et al., 2017). The "fuel poverty landscapes" conceptualized by Bouzarovski (2014, 2015) point, on the one hand, to the quality of the building stock and income levels and, on the other hand, to the historical formation of energy systems; these landscapes reveal the deep differences between high-income welfare regimes and fragile transition economies (Bouzarovski, 2014; Bouzarovski, 2015).

In contrast, countries with low or medium GTI, particularly in Southern, Central, and Eastern

Europe, are characterized by both higher income inequality and more intense energy poverty. Eurostat and EPRS data show that, as of the 2020s, the proportion of the population unable to adequately heat their homes in countries such as Bulgaria, Greece, and Romania is two to three times the EU average; this cohort also has relatively lower income levels and higher unemployment rates (Widuto, 2023; Eurostat, 2024). This regional concentration is consistent with studies emphasizing that energy poverty is "the energy face of poverty": Bouzarovski and Tirado Herrero (2019) show that energy poverty in Central and Eastern Europe is historically intertwined with low wages, inefficient housing stock, and fossil fuel-based heating (Bouzarovski & Tirado Herrero, 2019; see also Bouzarovski, 2021).

The relationship between GTI and energy poverty is far from linear. Śmiech et al. (2025), who examined 27 EU countries during the period 2011–2020, found that the impact of the energy transition on energy poverty varies depending on growth, inequality, and institutional capacity; in some contexts, renewable energy investments alleviate bill pressure for poor households, while in others, they lead to short-term cost increases (Śmiech et al., 2025). Critical assessments by Bouzarovski (2012) and Maier et al. (2026) also emphasize that policies to combat energy poverty in the EU remain fragmented and limited; particularly in Southern and Eastern Europe, there is a "regime of energy insecurity" accompanied by the rhetoric of green transformation (Bouzarovski, 2012; Maier et al., 2026).

Reading this picture from the perspective of the GTI index proposed in the study, the following pattern can be expected:

Countries with high GTI and relatively low inequality present examples of green transition supported by social policy tools that have managed to keep energy poverty relatively limited.

In countries where the GTI is rising but inequality and energy poverty remain high, green transition risks being perceived as "an additional burden on the present" rather than an "investment in the future." The European Anti-Poverty Network (European Anti-Poverty Network [EAPN], 2022) strongly criticizes this situation, particularly in the context of rising energy prices and the cost-of-living crisis, emphasizing the weakness of the social dimension of the green transition (European Anti-Poverty Network [EAPN], 2022).

Therefore, as discussed in H1, the green transition itself functions more as an intensifier layered onto existing income and welfare regimes rather than a factor that either produces or reduces inequality: while green policies are more conducive to producing fairer outcomes in strong welfare states, in fragile regimes the green transition can easily become a lever that increases the "social justice gap."

Next, we link these descriptive patterns to legitimacy outcomes by examining political trust and democratic satisfaction, including how inequality conditions the GTI effect.

4.6.2. Green Transition, Inequality, and Political Trust/Democratic Satisfaction

The second step is to relate this distributional picture to political trust and democratic satisfaction. The literature shows that political trust is both a precondition for support for climate policies and a fragile outcome affected by the results of these policies.

Hammar and Jagers' (2005) classic study examining support for a CO_2 tax in Sweden found that trust in politicians was decisive in the acceptance of costly climate instruments such as carbon taxes (Hammar & Jagers, 2005; see also Jagers et al., 2010). More recent studies have extended this finding across Europe: Kitt (2021) shows that trust in politics has a systematic effect on attitudes toward both carbon taxes and personal carbon allowances; distrust is fueled not only by doubts about the tax's effectiveness but also by suspicions about how revenues will be used (Kitt, 2021).

Kulin and Johansson Sevä's (2021) article, "Who do you trust?", highlights the difference between trust in partial and impartial institutions and support for climate policies: when trust in judicial and oversight institutions is high, support for climate policies can remain relatively high even if trust in the government is low; but when both types of trust are low, support drops dramatically (Kulin & Johansson Sevä, 2021). Kulin's (2024) more recent study shows that not only the level of political trust but also perceptions of competence and integrity are closely related to support for climate policy (Kulin, 2024).

When we combine these findings with the framework of our study, the following pattern is expected in the GTI–inequality–political trust relationship:

Low inequality, high trust context (regimes close to Group A): An increase in GTI will be associated with political trust and democratic satisfaction in a positive or neutral direction. Green transformation here may contribute to the state being perceived as an actor that "takes responsibility for future generations." Sandor et al.'s (2025) Eurobarometer-based study shows that green transformation, to the extent it is perceived as fair, is interpreted as an

indicator of democratic performance, especially in a low inequality context (Sandor et al., 2025).

High inequality, fragile trust context (especially Group C): As Gini and energy poverty indicators rise, the potential positive effect of the GTI on political trust weakens; it may even begin to show a negative trend. In this case, the green transition is coded as an "elite agenda" rather than a "common project." A large-scale survey conducted by Eichhorn and Grabbe (2025) in five EU countries shows that while support for climate action remains high in Europe, confidence in governments' ability to manage this transition fairly and effectively is weakening (Eichhorn & Grabbe, 2025). Similarly, the European Commission's study "Perceptions of fairness and climate action in the EU" finds a strong link between support for the green transition and the perception that "no one is left behind" (Sandor et al., 2025).

Within this framework, the expectations formulated in H2 can be summarized as follows:

The main effect of GTI is positively related to political trust and democratic satisfaction in a context of low inequality;

The interaction between GTI × Gini is negative; that is, as inequality increases, the "legitimacy dividend" of the green transition erodes.

This is not merely theoretical speculation; it also presents a framework consistent with the findings of broader public opinion research. Carattini et al. (2019) show that support for a global carbon tax rises significantly in scenarios where tax revenues are transparently redistributed and a fair and reliable institutional framework exists (Carattini et al., 2019). A recent report based on the EIB's climate survey also reveals that in contexts of rising inflation and inequality, support for climate policies becomes more sensitive to perceptions of "fairness" and "burden sharing" (European Investment Bank [EIB], 2024).

On the other hand, recent studies such as Goerg & Pondorfer (2025) and Kulin (2024) argue that more ambitious climate policies (e.g., the increased targets of the Fit-for-55 package) can reduce support levels; particularly in contexts of low trust and high inequality, the perception that the policy is "going too far" can strengthen (Goerg, 2025; Kulin, 2024). These findings suggest that the democratic legitimacy of the green transition depends not only on the level of the targets, but also on how they are distributed and the political psychological context in which they are debated.

Finally, we compare regime types to show where green-transition legitimacy is more resilient and where distributional stress more readily translates into democratic discontent.

4.6.3. Differing Dynamics According to Regime Types

Finally, as suggested in H3, it is necessary to briefly discuss how these relationships differ according to types of democracy. Here, rather than "empirical certainty," we are concerned with a typological analysis that reads the country groups described in the methods section through a political-psychological lens.

Group A – Resilient liberal democracies:

In these countries, relatively low inequality, institutional capacity, and high political trust combine to make the green transition a "performance test for democracy." Scandinavian countries, which have high GTI, are cited in most studies as examples of relatively high support for climate policy and democratic satisfaction due to both the increase in the share of renewable energy and the relatively strong social policy tools (Kulin & Johansson Sevä, 2021; Thomson et al., 2017). In this context, the green transition has the potential to be perceived as a process that nurtures the image of a "virtuous state."

Group B – Exposed but relatively stable democracies:

In many countries in Central and Eastern Europe, high energy poverty and rising inequality make the political meaning of the GTI more ambiguous. Bouzarovski (2021) and Śmiech et al. (2025) emphasize that the energy transition in these countries risks intensifying regional and class fragilities; a sense of "abandonment" is widespread in coal basins, old industrial regions, and rural areas (Bouzarovski, 2021; Śmiech et al., 2025). Bruegel's policy note titled "Europeans still want climate action, but don't trust governments to deliver" also argues that the disconnect between support for climate action and trust in government is becoming apparent in these countries; while citizens support climate goals, they are uncertain whether the government can achieve these goals in a fair manner (Eichhorn & Grabbe, 2025).

In this intermediate zone, the political meaning of the green transition can swing either way at any moment: when fair transition mechanisms are strengthened, the GTI can become a performance indicator that nourishes democratic legitimacy; conversely, when costs are distributed unfairly, green policies can become a fertile target for populist rhetoric.

Group C – Fragile/contested democracies:

In regimes experiencing a decline in democracy

indicators, afflicted by crises of the rule of law and representation, the green transition often becomes an "extra axis of tension." Carnegie Europe's latest assessment highlights that farmer protests and anti-green transition mobilizations in Europe have become a "channel for general discontent" against a harsher climate policy, particularly in contexts where trust in democracy and the state is weak (Carnegie Europe, 2025). EAPN's (2022) position paper titled "energy poverty and the green transition" also clearly states that the tension between energy poverty and green policies, when combined with the cost-of-living crisis, could fuel the risk of authoritarianism (European Anti-Poverty Network [EAPN], 2022).

In such regimes, the rise of GTI, as predicted in H3, may have a weakening effect on political trust and democratic satisfaction. This does not mean that climate policy itself is "authoritarian"; however, in an unequal context, green policies can easily become a symbol of inequality and the crisis of representation. Precisely for this reason, when discussing the democratic legitimacy of the green transition, it is necessary to speak not only of technical effectiveness and cost calculations, but also of perceptions of justice, experiences of threat, and the psychological terrain determined by regime type.

The picture painted in this section points to three main points:

GTI is not a variable that is "good" or "bad" on its own; it is an indicator of intensity that gains meaning when multiplied by the regime of inequality and social policy capacity, and can be distributively deepening or softening.

Political trust and satisfaction with democracy are both the "result" of the green transition and its prerequisite; lack of trust and perceptions of injustice weaken support for climate policy, while green policies can erode or reinforce this trust in the opposite direction.

Regime type is a critical contextual variable that determines the course of these relationships; in resilient democracies, green transformation has the potential to be part of a positive narrative about the performance of democracy, while in fragile democracies, the same policies can become fodder for populist and authoritarian mobilizations.

In the next section, these quantitative patterns will be complemented by a brief qualitative discourse analysis based on the climate and social policy documents of selected countries; thus, both the numerical and linguistic aspects of the "green transition–inequality–democracy" triangle will be discussed together.

4.7. Discussion

The normative promise of the green transition is simple: to save the planet "without leaving anyone behind." However, the empirical picture shows that this promise can only be partially fulfilled under certain institutional, socio-economic, and psychological conditions. In this section, I first discuss the theoretical and normative meaning of the findings, then present a brief qualitative policy analysis using selected country examples, and finally summarize the overall findings and research agenda of the study.

4.7.1. Conditional Legitimacy: Whose Democracy is the Green Transition?

At the European Union level, official discourse has framed sustainability transitions as requiring both the remedying of injustices and the avoidance of creating new inequalities. The European Environment Agency's note "Delivering justice in sustainability transitions" clearly emphasizes that transitions that do not address distributional, procedural, and recognitional justice together will produce new vulnerabilities (European Environment Agency [EEA], 2024). Similarly, studies examining the European Green Deal from a legal perspective note that tools such as the Social Climate Fund and the Just Transition Mechanism are designed to mitigate the distributional costs of carbon pricing, but that this design still represents an "incomplete architecture of justice" (Zachmann & Fredriksson, 2021; Heyen, 2020).

The findings in this article point to a critical intersection with the political psychology dimension of this institutional framework: Green Transformation Intensity (GTI) alone is associated with a slightly positive trend in political trust and democratic satisfaction; but this relationship erodes as the level of inequality increases. Inequality and energy poverty exhibit both quantitatively stronger and directionally much more pronounced negative relationships. This suggests that climate policy, particularly carbon pricing, can become a prism that, in most cases, "intensifies" rather than "reflects" existing regimes of inequality (Eurofound, 2020; Zachmann & Fredriksson, 2021).

Returning to the literature on political psychology, these findings can be interpreted on two levels. First, at the level of threat perception: The risk of losing one's job, income, or ability to heat one's home constitutes a classical economic threat; when combined with the symbolic burden of green policies, dimensions of status and cultural threat also come into play. Studies examining support for

climate policies in Poland's coal regions show that populist rhetoric politicizes precisely this threat around concepts such as "regime stability" or "Brussels bureaucracy" (Brauers et al., 2020; Yazar et al., 2022).

Second, at the level of perceptions of fairness and legitimacy: A carbon tax or energy price increase tests not only the budget but also the belief in the state's impartiality. When perceptions of fairness are weak and inequality is high, the green transition is coded not as a "shared sacrifice" but as an experience of "paying for someone else's mistake." Empirical studies that distinguish the channels of distributional effects emphasize that carbon pricing has asymmetric effects across countries and households; therefore, income return mechanisms and targeted social support are as critical for legitimacy as technical effectiveness (Büchs & Bardsley, 2011; Zachmann & Fredriksson, 2021).

Therefore, the main message of this study is that it is imperative to shift the climate policy debate from the "effectiveness–efficiency" axis to the threat–justice–legitimacy triangle. The GTI × Gini interaction predicted in the theoretical model can actually be translated into a political statement: Green transformation risks deepening the cracks in democracy rather than repairing it in places where inequality is high.

4.7.2. Qualitative Policy Analysis: Four Countries, Four Transition Narratives

These normative and relational findings gain further meaning when examined through the language of climate and energy documents. Below, I briefly discuss how the "just transition" discourse is constructed and what political-psychological meanings it is open to, using the examples of Germany, Poland, Lithuania, and Turkey.

4.7.3. Germany: Coal Phase-Out and the "Caring" Transition

Germany is often presented as an example of a "caring" coal phase-out. The work of the Coal Commission created a broad consensus aimed at making the phase-out socially tolerable by 2038; regional development funds, early retirement packages, and retraining programs were intertwined in this process (Gürtler et al., 2021; Oei et al., 2020). Policy reviews prepared by RFF and EDF show that the comprehensive support packages implemented in Germany's coal regions over decades encompassed not only employment but also regional identity and quality of life (Furnaro et al., 2021; Herpich et al., 2018).

This framework has become even more visible with the EU's recent approval of a €1.75 billion coal phase-out compensation package; the support package explicitly compensates not only for corporate profitability, but also for worker reemployment and regional social costs (Reuters, November 18, 2025). This signals a policy where distributive justice is addressed not only through "income compensation" but also through the dimensions of recognition and care.

What is striking in the German example is that the just transition narrative is built on the foundation of a socially robust welfare state and high institutional trust. Against this backdrop, the increase in GTI can be interpreted, in line with our empirical findings, as accompanied by a slight increase in political trust and satisfaction with democracy: The green transition is coded here less as a threat and more as an extension of the "well-functioning welfare state."

4.7.4. Poland: From A Coal Republic to a Fragile Transition

Poland is a prototypical example of a "tense just transition" due to both its historical dependence on coal and its accelerated but contradictory energy transition in recent years following a change in government. In the document "Poland's Energy Policy until 2040," a just transition is presented as the first pillar of the policy; large-scale development projects for coal regions supported by EU funds, retraining, and new investments are emphasized (Brożyński, 2022).

On the other hand, studies analyzing the political economy of coal reveal that the coal sector in Poland is triple embedded – closely linked to the national energy security discourse, union structures, and regional identities (Brauers et al., 2020). RFF's "Just Transition in Poland" report emphasizes that despite more than thirty years of restructuring efforts in Silesia, transition policy has often remained reactive, short-term, and narrowly sectoral; local people are positioned not as "owners of the future" but often as "objects of the process." (Śniegocki et al., 2022).

Even more striking from a political psychology perspective are individual-level studies examining support for climate policies in Poland and Silesia: Yazar et al. (2022) show that populist tendencies and perceptions of regional threats complexly shape support for fossil fuel taxes and renewable subsidies; particularly in coal-intensive regions, populism is sometimes associated with even higher tax support. This challenges the cliché of a "right-wing populist bloc against green policies," revealing that the real determinants are concrete experiences of threat and

expectations of regional redistribution.

Solar generation has surpassed gas-fired generation for the first time in 2025, even as coal remains a central pillar of Turkey's power mix—signalling measurable progress but a still-contested transition (Reuters, July 9, 2025). This dual structure qualitatively confirms our empirical finding: when GTI rises while inequality and regional insecurity remain high, the green transition produces a dual signal for democratic legitimacy – both hope and threat.

4.7.5. Lithuania: Small state, big European framework

Lithuania's National Energy and Climate Plan (NECP) and climate strategy paint a strongly technocratic transition narrative, closely aligned with the EU governance architecture. The NECP integrates the five dimensions of the Energy Union (decarbonization, energy efficiency, energy security, internal market, and R&D) into a single document, while addressing the social dimension more in the context of macroeconomic impacts and the use of EU funds (Republic of Lithuania, 2019/2024; UNFCCC, 2024).

The first Biennial Transparency Report (BTR) details the role of tools such as the Social Climate Fund, the Reconstruction Fund, and the national Climate Change Program in the implementation of the NECP; however, just transition is addressed more indirectly, mostly through regional development and household energy efficiency measures. NECP assessments reveal that Lithuania's transition strategy relies heavily on complementary policies (awareness, green public procurement, education), while direct redistribution or participatory processes remain in the background (UNFCCC, 2024).

This narrative aligns with the medium-level GTI and medium-level inequality profile in our study: Lithuania's green transition is characterized as a "quiet" transition that does not generate dramatic conflicts but also does not deeply target inequality and energy poverty. From a political psychology perspective, such a technocratic framework can function in small democracies where trust is relatively high; however, when rising costs and new social vulnerabilities emerge, it is unclear whether this quietness will persist.

4.7.6. Turkey: Discursive Alignment, Material Misalignment

Turkey's 2053 Long-Term Climate Strategy and 2024–2030 Climate Change Mitigation Strategy and Action Plan systematically incorporate the term "just transition" into the state's official climate documents for the first time. The Long-Term Strategy announces a 41% emission reduction by 2030 compared to the reference scenario and a net-zero target by 2053; the mitigation action plan highlights two horizontal areas in particular, alongside energy, industry, buildings, transport, and other sectors: fair transition and carbon pricing (Republic of Türkiye, 2024). The document mentions a broad consultation process involving more than 2,000 stakeholders and gender balance, indicating that procedural justice has been adopted at the rhetorical level.

However, the structure of the energy mix and recent emission trends confront this rhetoric with a harsh reality. In 2024, Turkey surpassed Germany for the first time in CO_2 emissions from fossil fuel-based electricity generation, becoming Europe's largest polluter; coal's share in electricity generation is around 35% and has been on an upward trend for the past three years (Reuters, February 6, 2025). Energy insecurity and fossil fuel dependence in transportation continue to pose both economic and environmental threats, especially for low-income households (Cevheribucak, 2021).

Fair transition assessments prepared in the EU-Turkey climate dialogue emphasize that Turkey is under dual pressure in terms of both energy poverty and coal dependency; however, the fair transition narrative is not yet sufficiently supported by concrete policy tools (such as regional retraining programs, energy poverty-targeted funds, and participatory planning processes) (ERCST, 2021). This situation provides a powerful example of the legitimacy risks that the combination of "high inequality, fragile democracy, and rapid but selective greening" can create within the conceptual framework of our article.

Ultimately, the Turkish example shows that merely verbally embracing a just transition is not enough; if this rhetoric is not supported by concrete redistribution and participation mechanisms that reduce perceptions of inequality and threat, it can, conversely, accelerate the erosion of trust.

4.8. Policy And Theoretical Implications

These findings and qualitative observations bring three main implications for both policy design and political psychology discussions.

First, the green transition is experienced as a threat regime rather than a "technical price signal." Carbon taxes, coal phase-outs, or strict emission standards can be perceived, especially in contexts of high economic insecurity, as measures that "restrict the present" rather than "invest in the future." Since

the perception of threat has not only material but also symbolic dimensions (profession, region, class identity), climate policies can easily be incorporated into populist "us and them" narratives (Hermwille & Yazar, 2022; Brauers et al., 2020).

Second, fair transition institutions are necessary but often insufficient frameworks. At the EU level, instruments such as the Just Transition Mechanism, the Just Transition Fund, and the Social Climate Fund provide a strong financial backbone to mitigate the distributional effects of climate policies; however, the design and use of these funds are often determined by the limits of national redistribution regimes (Eurofound, 2020; Heyen, 2020; EEA, 2024). In the case of Germany, these funds build on an already strong welfare state; in countries such as Poland and Turkey, weak redistribution capacity and high inequality limit the funds' capacity to generate legitimacy.

The policy recommendation that emerges from this is clear:

Revenues from carbon pricing should be redistributed in a progressive rather than regressive manner;

Direct support programs aimed at reducing energy poverty (price caps, targeted discounts on bills, insulation subsidies) should become a central component of climate policy, not a "side note" (Büchs et al., 2011; EEA, 2024).

Third, political trust and democratic satisfaction are not simple "output variables" but prerequisites for the green transition. The fact that the positive effect of GTI emerges more in contexts of low inequality and high trust removes trust from being merely a "post-policy" indicator and makes it an input for policy design. This necessitates a three-level approach to justice in the design of climate policy:

Distributive justice: Who bears which costs, through which means; who reaps which benefits?

Procedural justice: With whom are decisions made, and with what level of transparency and participation?

Recognition justice: Which identities, regions, and ways of life are constructed as "worth protecting" rather than "sacrificable"?

In contexts where these three levels are neglected, green transition projects increasingly become the target of an anti-elite and anti-institutional political discourse. In this context, power and interest conflicts within the Green Deal framework should be considered not only as environmental policy but directly as democracy policy.

Policy implications.

The conditional nature of legitimacy in the green transition suggests three concrete policy levers:

- Redistribute costs and benefits transparently (e.g., recycle carbon-pricing revenues progressively; protect low-income households and affected regions).
- Mitigate energy poverty directly (e.g., targeted social tariffs, building retrofits, and support for clean heating/transport access).
- Strengthen participatory design and recognition (e.g., structured social dialogue, citizen assemblies/consultations, and place-based transition plans in carbon-intensive regions).

5. CONCLUSIONS: A FRAGILE BALANCE BETWEEN CLIMATE ACTION AND DEMOCRATIC LEGITIMACY

This article attempted to examine the relationship between green transition, economic inequality, and democracy through country-comparative secondary data and selected policy documents, using concepts from political psychology. The picture obtained does not justify pure optimism or pessimism; rather, it contains conditional hope and a concrete warning.

Conditional hope lies in the fact that in regimes with high GTI and low inequality, green transformation can foster political trust and satisfaction with democracy.

In Germany and some Scandinavian democracies, climate policies can become a performance indicator that strengthens the welfare state's "responsibility for future generations" aspect. The concrete warning, however, is that in regimes where inequality and energy poverty remain high and trust in institutions is weak, the same policies have the potential to erode democratic legitimacy.

The examples of Poland, Lithuania, and especially Turkey show how the gap between the rhetoric of a just transition and its actual distribution provides fertile ground for populist and authoritarian tendencies. This gap is felt not only through incomes and bills but also through identities, rituals, and affiliations.

The limitations of the study are clear: its observational and secondary data-based design limits claims of causality; perceptions of threat and justice are represented by proxy variables derived from surveys; and energy poverty data is geographically limited, primarily to Europe. Nevertheless, the consistency of the findings and the contextual clues provided by qualitative policy analysis support the following strong claim:

Unless designed to save democracy, the green transition carries the risk of undermining it.

Finally, this study invites three future lines of research:

Micro-level political psychology studies: Investigate the impact of perceptions of threat, fairness, and legitimacy on support for climate policies using experimental and panel data designs; particularly distinguishing between different types of threats (economic, status, cultural) among groups experiencing energy poverty.

Multi-level models: Analyze the cross-effects between the "green transition regime" and "political psychological responses" in greater detail using multi-level models that combine country-level green transition and inequality indicators with individual-level attitudes and behaviors.

Qualitative discourse and policy anthropology: In-depth qualitative studies examining how the just transition discourse is reproduced in local communities, trade unions, and civil society networks, along with forms of resistance and appropriation.

If we want to establish an economic order that respects the "limits" of the planet, we must simultaneously conceive of this order within the limits of equality and democracy. Only when green transition is redesigned at the intersection of these three limits can it cease to be a "last chance" for both the world and democracy and become a promise of a new political partnership.

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