Can Europe lead a Just Transition?

Strengthening social justice in the European Green Deal by using European Pillar of Social Rights indicators

Darren McCauley
Kerry Andrea Pettigrew

solidar

REALISING
A SOCIAL EUROPE
FOR ALL WITH ALL

Erasmus
University
Rotterdam

NWO

About the authors

Darren McCauley is Full Professor in the Management of International Social Challenges (MISOC) at Erasmus University Rotterdam (EUR). He is also academic director of the Erasmus Initiative and strategic research pillar Global Social Challenges (GSC). His mixed methods research agenda focuses on investigating what a just transition to a low carbon future looks like from a global perspective. This has involved funded empirical research in the Arctic, Sub Saharan Africa, Southeast Asia, Europe and the US. He works closely with international organisations to co-develop research and ensure maximum impact from his work. This has been made possible by a wide range of external sponsors including (among others) British Academy, ESRC, EPSRC (now RCUK), GCRF, H2020 and Horizon Europe funding programmes, Leverhulme, Dutch Council NWO, UK Energy Research Centre, the Carnegie Trust and the Royal Society of Edinburgh. He holds several external expert positions, including on the Arctic project EU Polarnet.

Kerry Andrea Pettigrew is a postdoctoral research fellow on the Horizon Europe Project PROBONO as part of the Erasmus University Rotterdam. She is working on several work packages on this flagship Green Deal funded project. She is also the lead Global Social Challenges Research Coordinator in the Department of Public Administration and Sociology. Her current research interests are on the quantification of inequalities and justice measurements. In addition to working on sustainable neighbourhoods, she has research interests in global level data management and analysis with on-going research outputs on Latin America and the Caribbean, the Asia Pacific region and the Arctic. Her primary interests lie in multi-level health inequalities, genetics and ethics. She has held several postdoctoral positions at University of Bristol, University of St. Andrews and Queens University Belfast.

Acknowledgements: The authors would like to thank the NWO Dutch Research Council for supporting early versions of this approach and method in the funded project 'Managing a Just Transition out of Covid-19' (project no. 440.20.026) as part of the Covid urgent response call. The work has been partly supported by the Horizon Europe project PROBONO entitled 'the Integrator-centric approach for realising innovative energy efficient buildings in connected sustainable green neighbourhoods' (Grant ID: 101037075) and JUSTNORTH 'Toward Just, Ethical and Sustainable Arctic Economies, Environments and Societies' (Grant ID: 869327).

Contents

Foreword

Mikael Leyi
Secretary General of SOLIDAR

2022 will be long remembered as the year of the Russian Federation's brutal invasion of Ukraine, which is costing thousands of lives, leaving cities and regions in ruins and putting pressure on food and energy supplies. As if that wasn't horrific enough, war in Ukraine is shaking a European continent that is already severely impacted by the climate crisis and by deepening socio-economic inequalities. Since the beginning of the year, an unprecedented drought has affected many European regions, leaving 47% of the continent under warning conditions, and major wildfires have ravaged the southwest of France and other countries during the summer. Simultaneously, soaring energy prices and inflation rates have sharply increased living costs for Europeans and are plunging millions of people into poverty, while energy companies are making record-breaking profits.

In response to these tightly interconnected and mutually reinforcing crises, governments tend to be more short-sighted than strategic, leading to underfinanced social protection systems, a lack of effective taxation of wealth or of comprehensive foresight on the effects of privatisation. We need to put in place deep and transformative action aimed at making our societies and economies peaceful, equitable, climate-neutral and respectful of the environment. Social and environmental sustainability must go hand in hand and be characterised by social cohesion, enhanced access to rights, reinforced social protection and equality. We need well-financed and resourced public support systems, equipped and institutionalised mechanisms for social dialogue and the involvement of a strong civil society in all its diversity.

Ensuring a Just Transition to climate neutrality means putting people and socio-economic fairness at the heart of climate action. While high temperatures, extreme weather events and other consequences of climate change affect the lives of billions around the world, it is people in vulnerable situations who are hurt first and hardest, as they often lack the access to resources, infrastructure and other forms of support necessary to recover or to, at least, cope with climate-induced harms. At the same time, socio-economic inequalities such as those related to wealth and income are among the root causes of the climate crisis, as shown by the staggeringly higher carbon emissions of the richest individuals and countries compared to the rest of the world's population. Therefore, climate policies that do not address systemic injustices will fail to meet the objectives of the Paris Agreement and run the risk of exacerbating existing socio-economic inequalities.

Recent years have seen the European Union take a leading role in coordinating the efforts of its Member States to combat climate change and environmental degradation. Nevertheless, the EU is hardly delivering a "Just Transition". The European Green Deal (EGD), the EU's strategy to reach climate neutrality by

Drought, heat wave. Burnt stubble in a wheat field. Normandy, France, Month 2022. Source: shutterstock.com

2050, is meant to be guided by the 20 principles and rights of the European Pillar of Social Rights for a strong social Europe, but social justice considerations are mainly lacking in the Green Deal's design and current implementation. It is regrettable that the social dimension of the EGD revolves mainly around providing compensation for the social impacts and consequences of the green transition, instead of advancing social justice by addressing socio-economic inequalities and injustices through climate action.

What are the intersections between the European Green Deal and the European Pillar of Social Rights? How can we better integrate social and climate policies? Which EU member states are performing better? And how can we strengthen the social justice dimension of future climate strategies? In 2021, with the adoption of a new organisational strategy, which views a Just Transition as a path leading to greater social justice in and outside of Europe, the SOLIDAR network started asking itself these questions. This report, co-authored by Prof. Darren McCauley and Kerry Andrea Pettigrew from the Erasmus University Rotterdam and co-funded by the European Commission under the Employment and Social Innovation Programme (EaSI), aims to provide an initial set of answers and considerations in this field. While we focus on the decade preceding the launch of the EGD and keeping in mind that global shocks such as Covid-19 and war in Ukraine have massively changed today's world, this research can inform future strategies and action against climate change and for social justice.

We take this opportunity to thank Prof. Darren McCauley and Kerry Andrea Pettigrew for their informative and much-needed research, which will support our advocacy work. We also acknowledge the European Commission, which through its funding in the framework of the EU Programme for Employment and Social Innovation (EaSI), made this publication possible. We hope you will find the read interesting and the results useful in your work for a Just Transition!

Executive Summary

The European Green Deal is the flagship programme for the EU's ambition to deliver environmental, social and economic sustainability. It is the first agreed multi-national programme of its size and stature. The Green Deal concept is designed to bring together a wide range of issues, stakeholders and citizens' opinions on how best to tackle collective and seemingly insurmountable problems. And yet, the core issue of justice has been at best side-lined, if not ignored. The European Commission has mainly exported, confined and limited reflections on social justice to the Just Transition Fund and its associated financial mechanisms (Fleming and Mauger 2021, Heffron and McCauley 2022). The 'justice-lite' viewpoint of the Green Deal needs to change.

Within this context, the study aims to identify the extent to which the EU can lead on delivering a just transition, i.e., disrupting, reconfiguring and usurping the prevailing carbon intensive global top-down regime with one that places social justice at the heart of a new sustainable, inclusive and green bottom-up community-driven future. To measure potential, we must look to the past. Exploring the relative ability of each member state over the past decade to drive forward the key components of the Green Deal can help to uncover if this is possible. It allows us to understand where the key gaps in the Green Deal design and implementation exist from a social justice perspective. This could also shed light on where policy action is needed and what concrete recommendations could emerge to bolster the social justice credentials of the Green Deal.

The European Pillar of Social Rights can help to respond to these questions. Consisting of 20 principles, the pillar offers a comprehensive set of social rights that include equal opportunities and access to the labour market, fair working conditions, and social protection and inclusion. This report sets out to explore the research aims by considering how these principles relate to the central Green Deal structures of their eight action areas on climate ambition, clean energy, circular economy, safe environments, sustainable mobility, agriculture and ecosystem management. Section 1 introduces the debates, origins and rationale that lie behind these Green Deal action areas and the European Pillar of Social Rights principles.

The report is underpinned by an innovative research design, explained in section 2, based upon a quantitative-only approach to investigating the relationships between key indicators. It covers the most important connections through 'backcasting', a method for planning the actions necessary to generate tangible actions. The focus is on the last ten years, where data is available from 2011 to 2020 (inclusive) to provide a ranking-based analysis of member state performance on social justice as defined by the Pillar of Social Rights and the Green Deal action areas. We collect indicators from multiple sources that are designed to represent the core principles and objectives of each European initiative. All indicators are open access and fully available for replication and further assessment.

Section 3 presents an overview of the key trends observable in the data collected and analysed on the relative performance of each member state on the indicators for social rights and Green Deal action areas. A geographical concentration on the best performers in Western Europe on the social rights indicators differ from the more dispersed performance on the Green Deal action areas. A complex picture emerges of variable rates of success across the EU. Investigating the relationship between each in more depth reveals that Austria, Germany and Sweden score highly while Greece,

Ireland, Spain and Bulgaria are relatively poor performers. Different groupings emerge in the data, with an overall conclusion that dispels a simple regional explanation for strong or weak performance on social justice and the Green Deal.

Section 4 offers a wealth of data on how each of the social justice indicators relate to each individual European Green Deal action area. This allows for the development of policy recommendations for each action area. The data is visualised through scatterplots in a uniform and standardised manner to allow for quick and easy interpretations. The associated discussions detail the key observations found in the data. For the action areas on climate ambition, ecosystem management and safe environments, very little correlation was found between the social justice indicators and member state action area performance. Policy actions that encourage the connection between social justice and action-related commitments should be welcomed. Urgent attention is most required on thinking more radically (i.e., more stringent legislative requirements) about the destructive connection between environmental degradation and growth in the most developed European economies and pre-emptively for future impact in less developed nations.

The action area on energy shows a close relationship between social justice indicators and trends in energy affordability, security of supply and renewable energy deployment. Support for the relatively worst performing member states such as Poland, Hungary and Spain should therefore combine energy commitments with ambitious social justice targets. Observations on the data relating to the action areas on sustainable agriculture and energy efficient buildings encourage more structural changes in expanding the remit of each to reach their full potential. In each case, we identified different member states that were leading or lagging on an expanded set of indicators and topics to show the complexity and where to target support or encourage stricter legislation. Lastly, on sustainable mobility, observations point to the potential of increasing social protection and inclusion measures for increasing member state performances.

We conclude in section 5 with our overall recommendations. Our main aim was to explore whether the EU can lead on delivering a just transition. Our conclusion is that this is possible if policy actions are taken in a way that is recognisant of (1) the varying needs of all member states and (2) the full gamut of social justice commitments. With this overall conclusion, we develop four key recommendations. Every Green Deal action area should have a legislative commitment to improve social justice and not assume that each action area inherently does so. The second recommendation is that a broader approach to social justice beyond the 'citizen inclusion' agenda is adopted in each of the action areas. Thirdly, the just transition agenda places too much focus on benefiting territories of fossil fuels rather than all those areas that require progressive actions in social justice. Lastly, we call for the development of real-world data for justice aware policy action so that an empirical set of evidence can drive policymaking in this area.

Overall Recommendations

Justice is more than citizen inclusion

Taking a wider view of social justice leads to a more critical and meaningful approach to just transition in Europe. Justice is plural in both form and application. The Green Deal oversimplifies social justice as merely prioritising the inclusion of local citizens in key decisions on the transition. Inclusion is indeed an integral principle. But it should also be combined more systematically with other areas of concern such as social protection, fair working conditions and equal opportunities and access to the labour market. Embracing multiple understandings of justice will encourage more sustainable and accepted policies.

Unleash the power of social justice

The individual actions of each Green Deal theme should explicitly consider not only their impact on justice processes and outcomes, but also how they can proactively improve both social justice and Green Deal actions. They have mutually reinforced tendencies when implemented correctly. Compulsory reporting from member states to the European Commission on the impacts of actions, positive or negative, on social justice is urgently required in each case, as well as the actions taken to improve social justice. Member states should work closely with civil society in data gathering, analysis and monitoring performance.

Scrutinise data for justice-aware policy action

Rhetoric and ambitious targets need to be replaced with more systematic analyses of real-world data and trends. The dearth of up-to-date open access data in relation to each Green Deal action area is severely hampering progress for it to be understood, recorded and reframed. This is even more important with increasing crises or exogenous shocks such as climatic events, pandemics, conflict, and terrorism. An ability to react is predicated on accessing reliable information. Transparent, accountable and publicly accessible indicators and data on each area of the Green Deal must be developed as a priority.

Territories of 'relative need' not 'fossil fuels'

The terms of application to the Just Transition Fund should be expanded. Green Deal policy actions and associated funding should target all geographical areas where need is relatively more urgent. There should be recognition that such need will change over time. The term 'territories' is used by the EU's Just Transition Fund which refers to 'carbon-intensive' regions. A wider appreciation of need is therefore urgently required. Policy actions are equally applicable in other territories of member states who are lagging behind on the full range of social justice and Green Deal issues.

1 Introduction

The green transition away from carbon intensive industries towards sustainable replacements is a unifying challenge for the EU and its member states. Increasing evidence of climate breakdown, from unusually hot summers to expansive flooding, makes this objective even more urgent. And yet, the short-term extraordinary disruptions of the past two years, from the global coronavirus pandemic to the Russia-Ukraine conflict, encourage a dangerous tendency to hesitate among political leaders. This is the moment to reflect objectively on how well EU member states are performing on the green transition and identify where action is most needed. We argue that a renewed push to foster a greater commitment to social justice in the transition may assist in future policy actions in the green transition. To assist in this endeavour, we focus our attention on defining, quantifying and measuring the critical role played by fairness and equity in delivering a just transition. We define a just transition as 'ensuring a fair and equitable process of moving away from fossil fuels and towards the adoption of renewable and low carbon technologies, whilst disrupting, reconfiguring and usurping the prevailing carbon intensive global top-down regime with one that places social justice at the heart of a new sustainable, inclusive and green bottom-up community driven future'. Our contention from the outset is that the second half of this definition remains elusive, under-considered and therefore rarely measured in concrete policy actions on a European level.

We begin our report with a brief coverage of the ways in which justice considerations are largely ignored in the European Green Deal (EGD). We then identify how engaging with the European Pillar of Social Rights (EPSR) can help in exploring the social justice dimensions of the EGD. We conclude this section with how this unique combination of EPSR and EGD helps to further our existing understanding of social justice in green transitions.

1.1 The European Green Deal: What about justice?

At the end of 2019, the new president of the European Commission heralded the EGD as Europe's 'man on the moon' moment. The ambition set out by its long-standing architects was to present a widespread comprehensive set of actions to be achieved by 2050 with a view to reimagining the European economy and its relationship with society. The early years of the Green Deal has been characterised by promises, ambitions and statements such as becoming a 'global standard setter' (Eckert, 2021; Skjærseth, 2021). The action areas identified above raise the question, to what extent is there a substantial and comprehensive consideration of social justice? Fleming and Mauger comment below in one of the rare explicit reflections on justice and EGD:

"With a view to the justice aspect, it has to be acknowledged as a very positive development that an EU legal framework for identifying the transition's most affected regions, planning and financing actions and projects shall come into being. However, critique concerns the restrictive interpretation of the concept of just transition that the European Union institutions are promoting." *(2021, p. 179)*

The quotation above reveals the extent to which the European Commission has exported, confined and limited reflections on social justice to the Just Transition Fund and its associated financial mechanism. This is visible in the conceptualisation (see Figure 1) of the Green Deal on the third page of the final agreed text where justice is outsourced as a separate action area (EC, 2019). It exposes

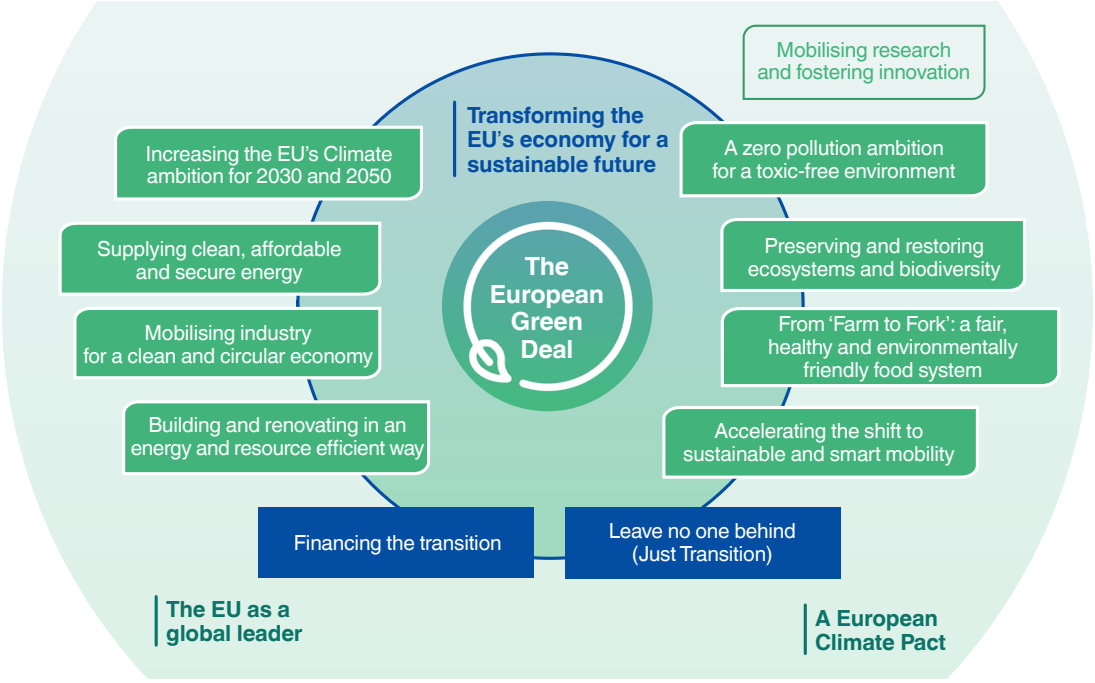

FIGURE 1: The European Commission's structure of the Green Deal (EC, 2019, p. 3)

the lack of social justice considerations in the core eight action areas of the EGD. Heffron and McCauley (2022) argue that the current iteration of the Just Transition Fund within the EGD is threatening the achievement of social justice goals as well as decarbonisation targets. We need instead to better integrate social justice within the eight action areas of the EGD itself.

The lack of social justice considerations has already resulted in several academic studies that reveal serious negative implications for the present and future of EGD. From an environmental justice perspective, Dunlap and Larette (2022) label the EGD as an exercise in intensifying market relationships, extraction and infrastructure colonisation. They refer to this as the 'necropolitics' of the EGD. Looking externally from the EU, indigenous rights activists expose the negative implications for considering historical injustices when social justice is largely omitted from the Green Deal's infrastructure (Feffer, 2021). There is already evidence that the European Commission and other European institutions are using the existing 'justice-lite' viewpoint of the Green Deal to side-line crucial environmental and social issues and endorse their own perspective (Eckert and Kovalevska, 2021; Samper, Schockling and Islar, 2021). To bolster the social justice dimensions of EGD, we propose to use the EPSR and its action plan to quantitatively address where measurable shortcomings exist and how the EGD could be reformed accordingly.

1.2 The European Pillar of Social Rights

The EPSR was formally announced at the end of November 2017 at the Social Summit for Fair Jobs and Growth in Gothenburg, Sweden. It set out 20 key principles on social justice, as shown in Figure 2. The President of the European Commission, Ursula von der Leyen, formally committed to the pillar during a speech in July 2019 at the European Parliament. For this report, it is a timely reminder that the transition is more than the achievement of decarbonisation targets. Academic and non-academic studies are dominated by climate and energy insights, rather than exploring the wider EGD framework in which climate is only one

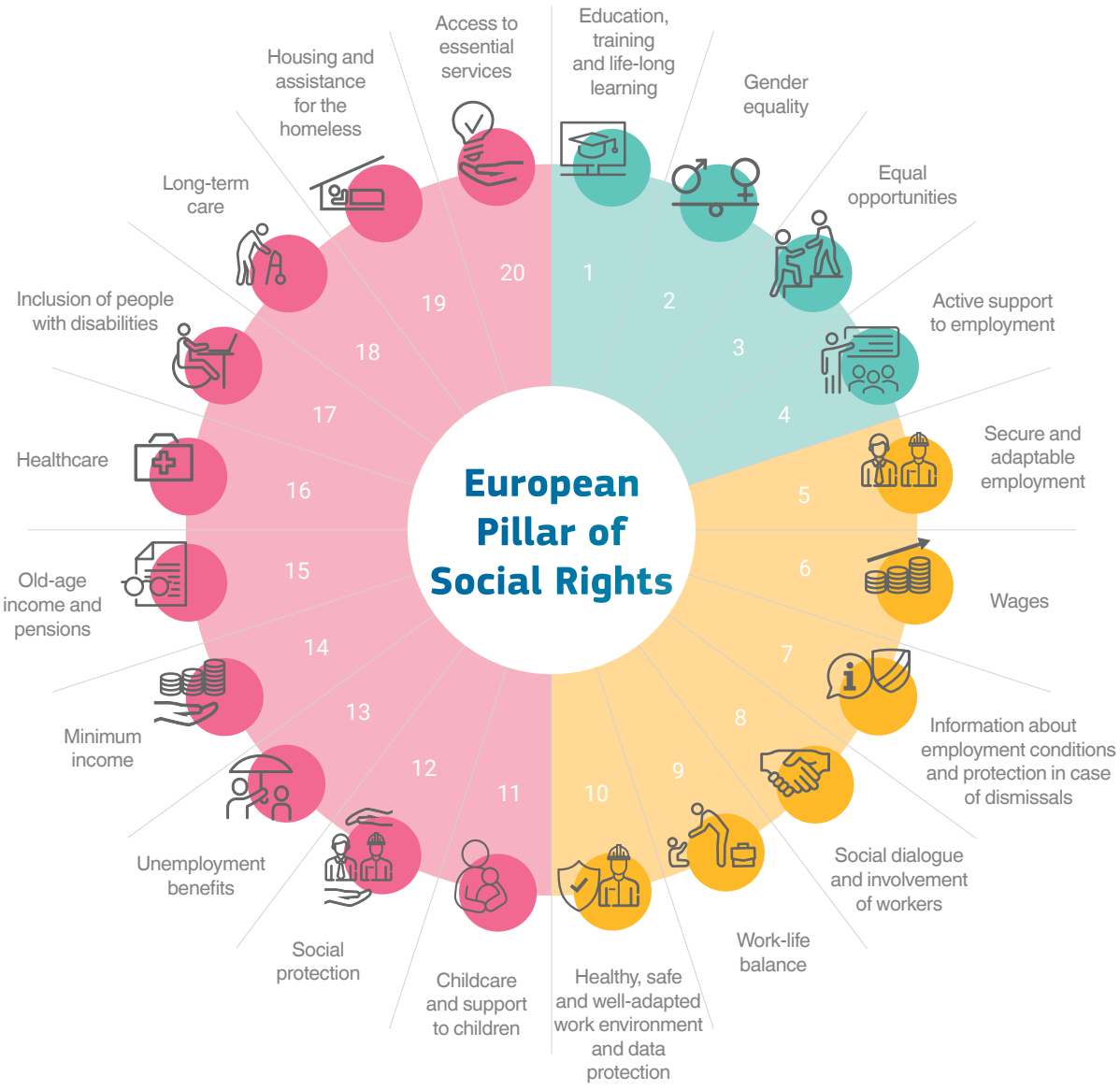

FIGURE 2: The European Pillar of Social Rights in 20 Principles (EC, 2017, 2021)

action area among many. If we take forestry as an example, the EGD does not consider the multiple benefits forests provide to society and the furthering of social justice values (Aggestam and Giurca, 2021). The EPSR offers a comprehensive set of social justice considerations that encompass equal opportunities and access to the labour market, fair working conditions and social protection and inclusion. Its action plan states that its core objective is to achieve "a stronger social Europe for just transitions and recovery". Aranguiz (2017) argues that the EPSR can be employed in a way to "shield" the social and economic considerations in EU policymaking. A better integration of such ambitions and concrete actions could significantly help the development of EGD to shield and propel forward the economic and environmental actions of the EGD.

The EPSR offers a defined and usable set of criteria for understanding the boundaries and potential of social justice concerns. Often social justice can be used interchangeably with competing ideas of equity, fairness and various perceptions of what 'just' is. The amalgamation of a common agenda around the labour market, fair working conditions and

social protection and inclusion is an attempt to systematically consider how social justice can be categorised. The action plan goes on to identify three target areas for its policy actions in line with each of the three categorisations, namely (1) to ensure that at least 78% of the population aged 20 to 64 is employed by 2030, (2) 60% of all adults should participate in training every year and finally (3) the number of people at risk of poverty or social exclusion should be reduced by at least 15 million by 2030. The conclusion for this report is that social justice needs to be quantifiable and measurable to contribute to tangible policy actions, and the EPSR offers one useful set of variables.

It is, however, only one formalised set of social justice categories that has been subjected to much criticism. Carella and Graziano (2022) denounce, for example, the EPSR as a watered-down imitation of a previous more ambitious initiative called the Open Method of Coordination introduced in the 1990s. In responding to an earlier more positive outlook from Hendrickx (2017), they argue that excessive political consensus has resulted in largely "soft" non-legally binding social justice principles. Their own empirical analysis reveals the lack of innovation in the content and ambition of the EPSR, leading to what they refer to as a missed opportunity, or "critical juncture", in how social policy is addressed in Europe. Vesan and Corti (2019) detail the high level of political tension involved in negotiating the EPSR, especially between member state interests. In their view, it has repositioned the European politics of Social Europe from a left-right issue to high-wage/high-welfare vs. low-wage/low-welfare. Contention, denouncement and enforceability detractions to one side, the EPSR remains a leading European initiative on social justice.

1.3 Contributing to state-of-the-art thinking on social rights and green transition

Bringing together the EPSR with the EGD can inspire an ambition to unite scholarships in environmental, climate and energy justice through the common objective of a just transition, in line with calls outlined in detail by McCauley and Heffron (2018). Each have en-

gaged with the conceptualisation of just transition (Kenfack, 2019; Williams and Doyon, 2019; Weber and Cabras, 2021). Just transition can be such a shared space. Just transition began as a mobilising term in the 1980s. It promoted green jobs as part of the transition away from fossil fuels (Abraham, 2017). Criticisms emerged against this term as it could lead to a 'jobs versus environment or climate' frame. In this way, it could be used detrimentally against communities and the transition (Curley, 2018). Nevertheless, its present-day usage among many NGOs such as Friends of the Earth calls for a jobs guarantee alongside climate change action (FoE, 2017). Deeper empirical and theoretical reflection is essential to validate this conclusion and explore its implications in relation to the EPSR and the EGD connections and resulting policy recommendations. Just transition in this way can be a ground-breaking new conceptual approach designed to focus all three scholarships on examining the inequalities inherent in the transition.

The trade union origins of the just transition concept, with a focus on jobs, were explicitly positioned within the environmental justice movement (Farrell, 2012; Fox-Hodess, 2019; Thomas, 2021). Climate justice is more focused on effective global justice transitions that can deal with the implications of the inevitable consequences of rapid climate change for vulnerable groups in the Global South (Routledge, Cumbers and Derickson, 2018; Kenfack, 2019). Energy justice scholars focus just transition around achieving energy efficiency in the long term without compromising individual well-being or community cohesion (Mullen and Marsden, 2016; Castán Broto et al., 2018; Grant et al., 2021) – of which jobs is only one (often overlooked) component. The past, current and future use of the term 'just transition' must appreciate the centrality of livelihoods and employment to keep its central focus. This should not, however, hamper its conceptual development to include other factors to make the concept more robust and adoptable. Our EPSR analysis of the EGD engages in just such a wider theoretical reflection and, ultimately, policy recommendations.

Just transition is designed to focus all three scholarships on examining the inequalities inherent in the transition (McCauley and Heffron, 2018; McCauley et al., 2022). The transition means that justice scholarships can help to develop a comprehensive framework of analysis. Our work in this report more explicitly contests current thinking which is often limited to the distributional, procedural, recognition and restorative dimensions of just transition (McCauley et al., 2019). All four justice scholarships have experienced the same lack of data-driven quantitative studies, leading to a move towards more qualitative procedural and only justice-based research. If we are to achieve a just transition, we must come together to develop both quantitative and qualitative dimensions to help develop concrete, usable policy recommendations. We offer such an engagement in this report through the quantitative application of the EPSR principles to the EGD action areas.

2 Methodology

This section concentrates on detailing the methodological approach for the quantitative analysis which is the core set of work to be completed during the proposed project. Our focus is to ensure accessibility for the reader in presenting understandable key observations that result from carefully selected open access data. We took a quantitative only approach, considering the wealth of existing qualitative case studies that detail the specificities of justice concerns in the areas of the European Green Deal. To provide direction for the reader, we set out explicitly our core research questions for this report in the first section. We then move on to consider more detailed questions around selecting the data, what we did with the data and indicate some of the challenges concerned in conducting such an endeavour. We finish with some brief reflections on the analysis and the development of visualisations for this report.

2.1 Guiding research questions

The overall aim for this research is to identify the extent to which Europe can lead on just transition. There are three aspects to our research which seek to build an answer to this overall aim. The first involves understanding where the gaps exist within the current European Green Deal structure. The second is to identify where policy action is needed to make the EGD fairer and more equitable. This leads us then to our overall policy recommendations in relation to each of the action areas and more generally to a way forward for ensuring that Europe can lead on just transition.

RQ 1: What are the current gaps from a social justice perspective in EGD design and implementation?

The existing lack of critical reflection on the EGD action areas from a social justice viewpoint means that we should establish a baseline set of observations on justice, based on our data analysis, a targeted literature review of the Green Deal areas and emerging critiques. Due to time restrictions, we will not conduct a detailed qualitative systematic review, but tie in literature into our recommendations. Answering this question includes gathering relevant insights into how to structure policy recommendations. We use the principles of the EPSR to guide us on where to focus with regards to which existing justice considerations are observable. To complete this, we lead into a more detailed analysis of the quantitative research which is set out in research question two.

RQ 2: Where is policy action needed to make the EGD fairer and more equitable?

The hyperbole surrounding the unveiling of the EGD (as outlined in Eckert 2021 and Skjaerseth 2021 above) suggests that it is necessary to test where such claims are valid (or not). The second research question involves exploring how the EPSR principles can help to assess the relative 'justice' performance of EU member states in each of the eight action areas of the EGD. This offers insights into the policy responses that are urgently required and where current interventions could be better applied. We build on our globally recognised peer reviewed methodological approach, published in Global Environmental Change, as set out in McCauley et al. (2022). We answer this question through a quantitative assessment of the EGD action areas from the perspective

of EPSR calculated measures. We detail our methodological approach in section 3 below.

RQ 3: What are the resulting policy recommendations?

The quantitative analysis will offer data-driven observations and indications on how best to integrate the EGD with the core principles and actions of the EPSR. The third research question specifically asks what concrete policy recommendations can be formed as a result, targeting policymakers both at the EU level and the national level. Such recommendations are critical for furthering the social justice dimensions of the EGD and for providing a more prominent role for EPSR in future endeavours. We make such recommendations in line with the quantitative data observations and visualisations, but not in granular detail on each member state due to word restrictions.

2.2 Conceptual framework and research design

Using open-access data provided by Eurostat primarily, we will identify trends between member states' performance on 1) each of the three overarching social themes of the EPSR and 2) each of the eight EGD action areas. This will enable us to determine which EGD action areas are in the greatest need of policy interventions to improve EU member state performance to achieve social justice goals. The use of quantitative data to establish an objective, fair and transparent assessment of EU member states' performances ensures that each state has been compared based on the same criteria, within the confines of the reliability of the data sources themselves. The data sources and associated metadata will be clearly outlined, so that the limitations of the indicators are apparent, and the scope for misinterpretation is minimised. As outlined below, we build directly on indicators set out in the EPSR Action Plan, with both existing and supplementary indicators.

It is only possible to make telling policy recommendations when equipped with a clear knowledge of recent trends. The EGD is full of grand ambition and forward-looking objectives. We seek to establish the most important connections between social justice goals in the EPSR with the EGD action areas through 'backcasting', a method for planning the actions necessary to generate tangible actions. To do this, we investigate data spanning 2011-2020, to firmly establish a picture of the recent history of each member state. More recent data is only sparsely available on key indicators, but it is important to sample from a sufficiently long period, to avoid making spurious observations based on incomplete data or inconsistent sampling methods. Using a ten-year period will improve the reliability of the observations made from this data. Our long-term objective is to develop a new innovative model to be applied during the implementation timeframe of the EPSR and EGD, rather than looking back. In the short-term, we base our current empirical ranking-based model on that established in McCauley et al. (2022), which is entitled the DeePeR model (Distributive, Procedural and Restorative justice evaluated by ranking performance on selected open access energy and equity metrics). We will in this way establish a set of ranking measures developed from the three themes of the EPSR and the eight EGD action areas. Future work in this area will involve re-categorising in line with dimensions of justice. We therefore see the long-term potential of developing both a conceptual and empirical model from the proposed set of tasks set out below. We provide more information on the data sources and ranking based analysis that we will undertake.

2.3 Data collection and analysis

We investigated the list of indicators outlined in Annex 2 of the European Pillar of Social Rights Action Plan (https://op.europa.eu/webpub/empl/european-pillar-of-social-rights/en/), and identified the indicators most closely fitting the descriptions of the 'headline indi-

cators' (Table 1). No such explicit guidance was available for the selection of indicators representing the eight European Green Deal thematic areas; consequently we selected indicators for our analysis from the 26 indicators listed on Eurostat's 'Statistics for the European Green Deal' https://ec.europa.eu/eurostat/cache/egd- statistics/, for which data were available at member state level. We categorised the indicators most relevant to their respective theme. A total of 13 indicators were selected from this set which were best fitted to answer our research questions. Two EGD thematic areas were not well represented in this set of indicators, or in the Eurostat database. For EGD theme 4 (Energy and resource efficient buildings), we identified two indicators from the EU Buildings Database. For EGD theme 6 (Farm to fork), we supplemented the one Eurostat-sourced indicator for which there was full data for all member states, with several indicators from SDG 2 and SDG 12 (Table 2). We selected a timeframe of 2011-2020, averaging the data for each measure per member state.

Because 'Adjusted gross disposable income of households per capita' data were missing for Romania and Malta, and 'Individuals' level of digital skills' data were missing for Finland, an overall rank percentile EPSR score was not achievable for these countries if the full set of indicators were retained. Similarly, 'Prevalence of moderate or severe food insecurity in the adult population (%)' data were unavailable for Cyprus, leading to a missing EGD 6 score for that country. Otherwise, data on all indicators were available for all member states.

Raw data files downloaded from source were cleaned and pivoted as necessary using R, before merging into a single file based on member state name and year. The combined dataset was then imported into the data visualisation tool Tableau, where the individual measures were aggregated (weighted equally) into their respective themes. The following section outlines how these selected indicators were analysed.

A quantitative study of the just transition concept necessarily requires analysis of multiple data types (for example, energy units, social indices and units of currency), which makes the calculation of compound measures more challenging. Consequently, and in line with recent literature (Kraipornsak, 2018; Mengova, 2019), we chose to take a rank percentile approach. A rank percentile score will be calculated for each EU member state for the three social (EPSR) themes and eight EGD themes, using the following general formula:

***R = p/100 (n+1),* where R = rank percentile, p = percentile, n = sample size.**

Rank percentile scores are a simple and accessible method of allowing comparison of each member state's performance in these themes. The relationship between individual member states' performances (rank percentile scores) on the three social themes were visualised alongside their performances (rank percentile scores) on the eight EGD themes using Tableau. Formulae used to process the data in Tableau are provided in the Appendix.

Table 1 Headline indicators of the European Pillar of Social Rights: adapted from Annex 2, The Revised Social Scoreboard, EPSR Action Plan (European Commission, 2021). All are sourced from Eurostat.

Theme	Headline indicators	Indicator title (Eurostat)	Indicator code (Eurostat)
1: Equal opportunities and access to the labour market	Adult participation in learning during the last 12 months	Adult participation in learning by sex	sdg_04_60
	Share of early leavers from education and training	Early leavers from education and training by sex	sdg_04_10
	Individuals' level of digital skills	Individuals' level of digital skills	isoc_sk_dskl_i, isoc_sk_dskl_i21
	Youth NEET rate (15—29)	Young people neither in employment nor in education and training by sex, age and educational attainment level (NEET rates)	edat_lfse_21
	Gender employment gap	Gender employment gap	tesem060
	Income quintile ratio (S80/S20)	Income quintile share ratio - S80/S20	tessi180
2: Fair working conditions	Employment rate	Employment rates by sex	lfsq_ergaed
	Unemployment rate	Unemployment rate - annual data	tipsun20
	Long-term unemployment rate	Long-term unemployment rate, % of active population aged 15-74	tipslm70
	GDHI per capita growth	Adjusted gross disposable income of households per capita	sdg_10_20
3: Social protection and inclusion	At risk of poverty or social exclusion rate (AROPE)	Persons at risk of poverty or social exclusion by age and sex	ilc_peps01n
	At-risk-of-poverty rate or exclusion for children (0—17)	Children at risk of poverty or social exclusion by educational attainment level of their parents (population aged 0 to 17 years) - EU 2020 strategy	ilc_peps60
	Impact of social transfers (other than pensions) on poverty reduction	Impact of social transfers (excluding pensions) on poverty reduction by sex	tespm050
	Disability employment gap	Disability employment gap by level of activity limitation and sex (source EU-SILC)	tepsr_sp200
	Housing cost overburden	Housing cost overburden rate	tespm140
	Children aged less than 3 years in formal childcare	Children aged less than three years in formal childcare	tepsr_sp210
	Self-reported unmet need for medical care	Self-reported unmet need for medical care by sex	tespm110

Table 2 The eight thematic areas of the European Green Deal

EGD theme		Indicator title	Indicator code
1	Increasing climate ambition	Net greenhouse gas emissions (source: EEA)	sdg_13_10
2	Clean, affordable and secure energy	Share of renewable energy in gross final energy consumption by sector	sdg_07_40
		Available energy, energy supply and final energy consumption per capita	nrg_ind_esc
		Population unable to keep home adequately warm by poverty status	sdg_07_60
3	Industry for a clean and circular economy	Circular material use rate	sdg_12_41
4	Energy and resource efficient buildings	Share of Near Zero Energy Buildings (NZEB) in new construction for residential*	(none: denominated 'B2')
		Share of NZEB in new construction for non- residential*	(none: denominated 'B3')
5	Sustainable and smart mobility	Modal split of freight transport	tran_hv_frmod
		Share of zero emission vehicles in newly registered passenger cars (source: EAFO, DG MOVE)	cli_act_noec
		Modal split of passenger transport	tran_hv_psmod
6	Farm to fork	Area under organic farming	sdg_02_40
		Prevalence of moderate or severe food insecurity in the adult population (%)**	AG_PRD_ FIESMS***
		Agriculture orientation index for government expenditures**	AG_PRD_OR-TIND***
		Productivity of large-scale food producers (agricultural output per labour day, PPP) (constant 2011 international $)**	PD_AGR_ LSFP***
		Productivity of small-scale food producers (agricultural output per labour day, PPP) (constant 2011 international $)**	PD_AGR_ SSFP***
		Food waste per capita (KP) - HHS, OOHC, RTL**	AG_FOOD_ WST_PC****
7	Biodiversity and ecosystems	Share of forest area (or other wooded area)	sdg_15_10
		Protected areas (source: EEA) (terrestrial, marine)	env_bio4
8	Zero-pollution, toxic-free environments	National expenditure on environmental protection by institutional sector	env_ac_epneis
		Years of life lost due to PM2.5 exposure (source: EEA)	sdg_11_51

**sourced from EU Buildings Database*
sourced from UN Sustainable Development Goals (SDG 2 and SDG 12****)*

3 Social Rights Principles and the Green Deal: Overall Results

We begin our results with some initial observations from our ranking based analysis of EU member states on firstly the EPSR, then the EGD, concluding with how each relate. We are unable to elaborate on the reasons why each member state is ranked where they are outside the limitations of the data sources outlined above. Our analysis does not provide individual case studies due to the limitations of this report. We do however indicate where our results are surprising and worthy of further research, and most importantly indicate results that may be relevant to our research questions.

3.1 Performance on the European Pillar of Social Rights

There is variation in the level of performance among EU member states along all the headline indicators for the EPSR. As can be seen in Figure 3, the best rates of positive performance overall are centred geographically in the EU space, with less impressive rates scattered around Europe in each direction, most notably to the east and south. The leading performers include the Netherlands, Denmark and Luxembourg whilst the laggards include

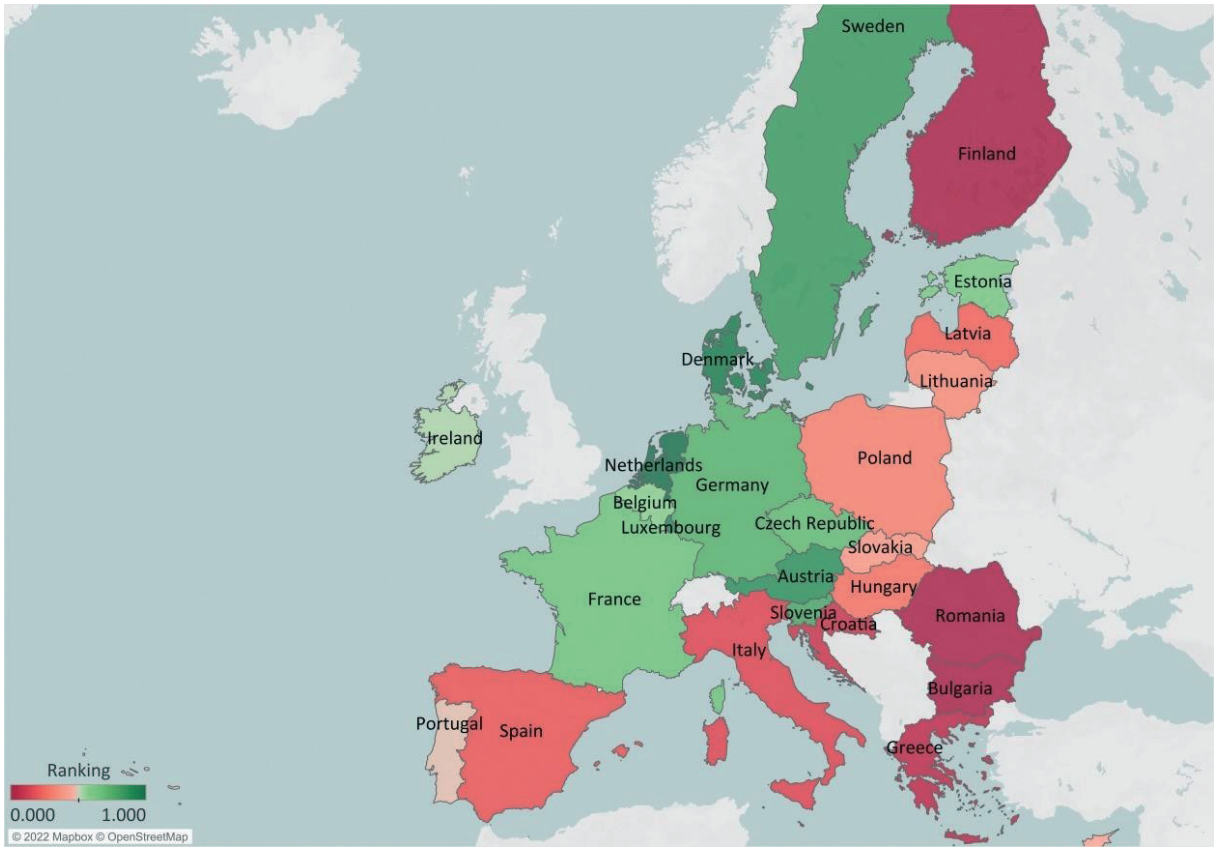

FIGURE 3: Performance of member states on the European Pillar of Social Rights, rank percentile 2011- 2020. High scores indicate high performance and vice versa.

Bulgaria, Romania and Greece. Notably, Italy and Spain perform worse than several East European countries such as Poland, Hungary, Lithuania and Latvia. A more detailed assessment of Western Europe also demonstrates that Ireland and Portugal ranked lower than for example the Czech Republic, Estonia and Slovenia. To the north, the positive performance of Sweden and Denmark contrasts significantly with that of Finland. The first conclusion here is that whilst geographical patterns are observable, we must be careful not to oversimplify otherwise variable performance is not adequately understood.

There was more (albeit rather modest) variation in performance across the three categories that comprise the EPSR. The same leading and lagging countries remained in the same approximate ranking position. Looking more closely at the first category of equal opportunities and access to the labour market, Sweden, Denmark and the Netherlands were in the lead with Italy, Bulgaria and Romania ranking worst. The second category of fair working conditions was in contrast led by Germany, Austria and the Netherlands with Spain, Croatia and Greece at the bottom. On the final category, social protection and inclusion, a striking difference was apparent with Slovenia, Finland and Luxembourg leading the way. In line with other categories, Greece, Romania and Bulgaria were at the bottom of this ranking. There were no clear instances of longitudinal shifts in ranking to report in addition to those reported above.

There was not much longitudinal variation in performance between the ranking observations, so we do not present visualisation here in that regard. The notable overall exceptions to this were the declining performances of Austria, Germany, Belgium and Cyprus whilst others showed upward trajectories such as Estonia, the Czech Republic and Hungary. Looking more closely into the data, we can see that Austria, Belgium and Cyprus experienced the most significant part of their decline with regards to category two, i.e., fair working conditions whereas this was more notable for Germany in category three, i.e., social protection and inclusion. The more positive trajectories of Estonia, the Czech Republic and Hungary are observable across each of the three categories. It should be noted overall that this variation was not especially significant across the timeframe, often each country making small changes in the ranking.

3.2 Performance on the European Green Deal

The overall geographical picture for how well individual member states have done in the eight action areas of the Green Deal appears at first sight to be in line with the results reported above for the EPSR. Figure 4 shows strong performance in the core of the geographical region with the East and the South scoring relatively lower. The variation in performance takes on a different set of characteristics than with the EPSR. The leading countries are firstly different as Austria, Estonia and Germany score highly, while Greece, Ireland and Bulgaria are relatively poor performers overall during this study timeframe. The variation is more pronounced geographically also. The core of the European region is less dominant than in the results for the EPSR. The North's good performance is more uniform, whilst surrounding countries vary from their neighbours such as Hungary and Slovakia or Lithuania and Latvia. It is evident that the picture is more mixed than for the EPSR.

Unlike the three categories of the EPSR, there is a strong level of variation across individual performances along the eight action areas. Each EGD action area displays its own story. We investigate each in turn in section 4 below. For the overall picture, we briefly take the three leader countries and then reflect on the variation across EGD action areas. Austria is the overall leader for the study timeframe. And yet it is in the bottom four performers for EGD 1. Estonia has a less stark variation, but it varies

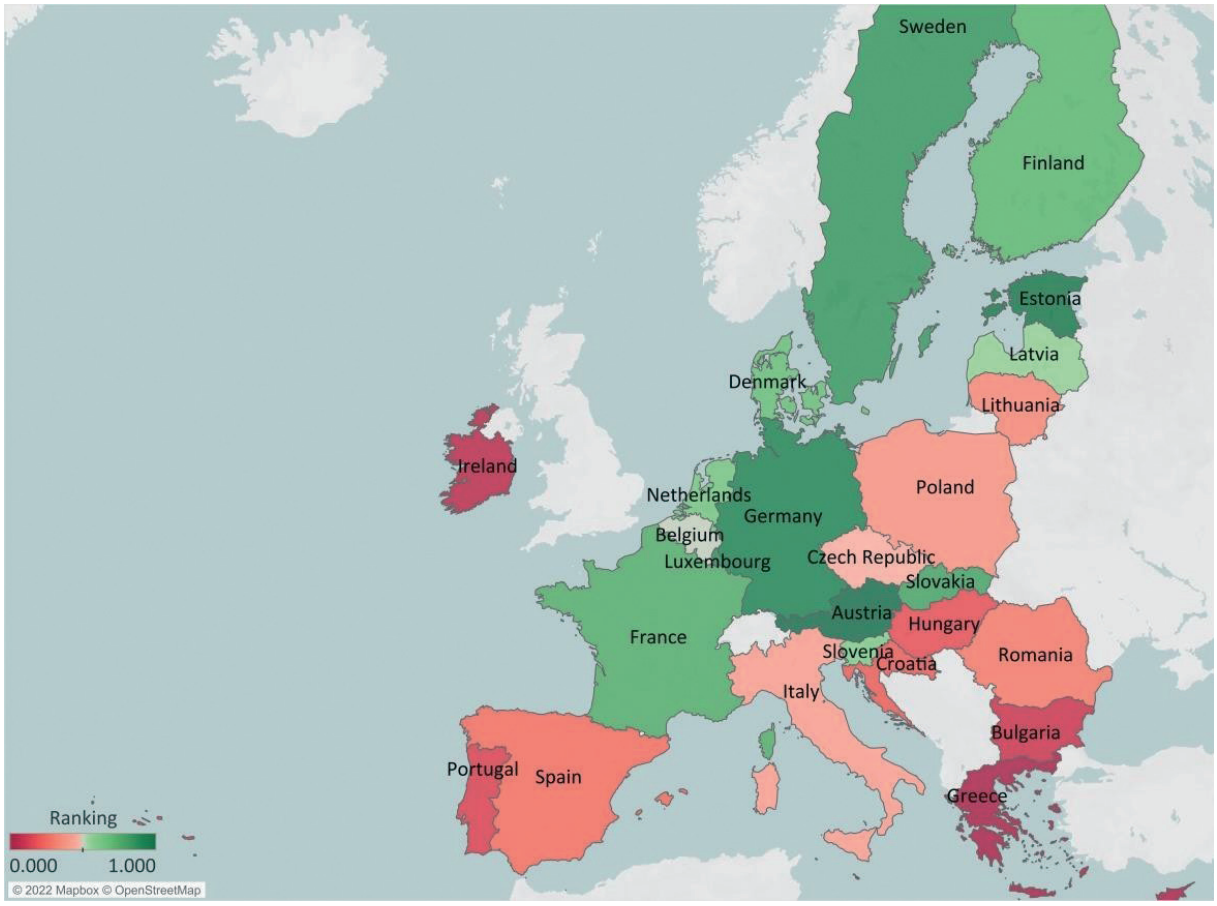

FIGURE 4: Performance of member states on the European Green Deal, rank percentile 2011-2020. High scores indicate high performance and vice versa.

from middle ranking performances for EGD 1, 7 and 8. For Germany, we also see poor performances for EGD 1, 5 and especially 7. These countries are not alone in experiencing such divergence. Greece for example is in the top 25% for EGD 7, with a similar situation for Ireland in the case of EGD 8 and Bulgaria for EGD 1 and 7. In conclusion, the overall picture for member states scores is mixed at best, and at worst inconclusive when taken in isolation. We do not reflect here in any detail on variation across time. We instead move on therefore to consider the relationship between the EPSR and EGD, before elaborating on differences across space and time between member state performances in each of the eight action areas of the EGD.

3.3 Relationship between performance on the Pillar of Social Rights and the Green Deal

Our objective for this section is to identify observed trends between the performances of individual member states on the EPSR and the EGD. Considering the explorative nature of this research, we do not seek to argue for statistical significance as a key criterion. Instead, our analysis presents interesting new connections that have been hitherto underexplored. An overall EPSR score was plotted against an overall EGD score, to identify if there was a visible relationship in performance level across EU member states (Figure 5). This indicates a similar directly proportional trend between performance in EGD indicators and EPSR indicators. Figure 5 shows the relative performance of each country.

The observed connection between the overall scores of individual member states on each of the different groupings of measures identified for the EPSR and the EGD presents an interesting starting point for deeper reflection. Considering the high variation in the nature of the measures underlying each analysis, it is intriguing to observe similar groupings of high and low performing nations. The overall leaders at this stage of our analysis are Austria, Germany, Sweden and Luxembourg whilst the consistently underperforming nations are Greece, Bulgaria, Croatia, Spain and Hungary. Ireland and Portugal emerge as moderately decent performing nations on social rights whilst performing relatively worse on the action areas of the Green Deal. Slovakia and Estonia are relatively high performers on the Green Deal whilst moderate to low on social rights. The combination of an observable trend with interesting groupings will be reflected upon further in section 5 on policy recommendations. At this stage, we move on to a more in-depth analysis of each EGD action area in section 4.

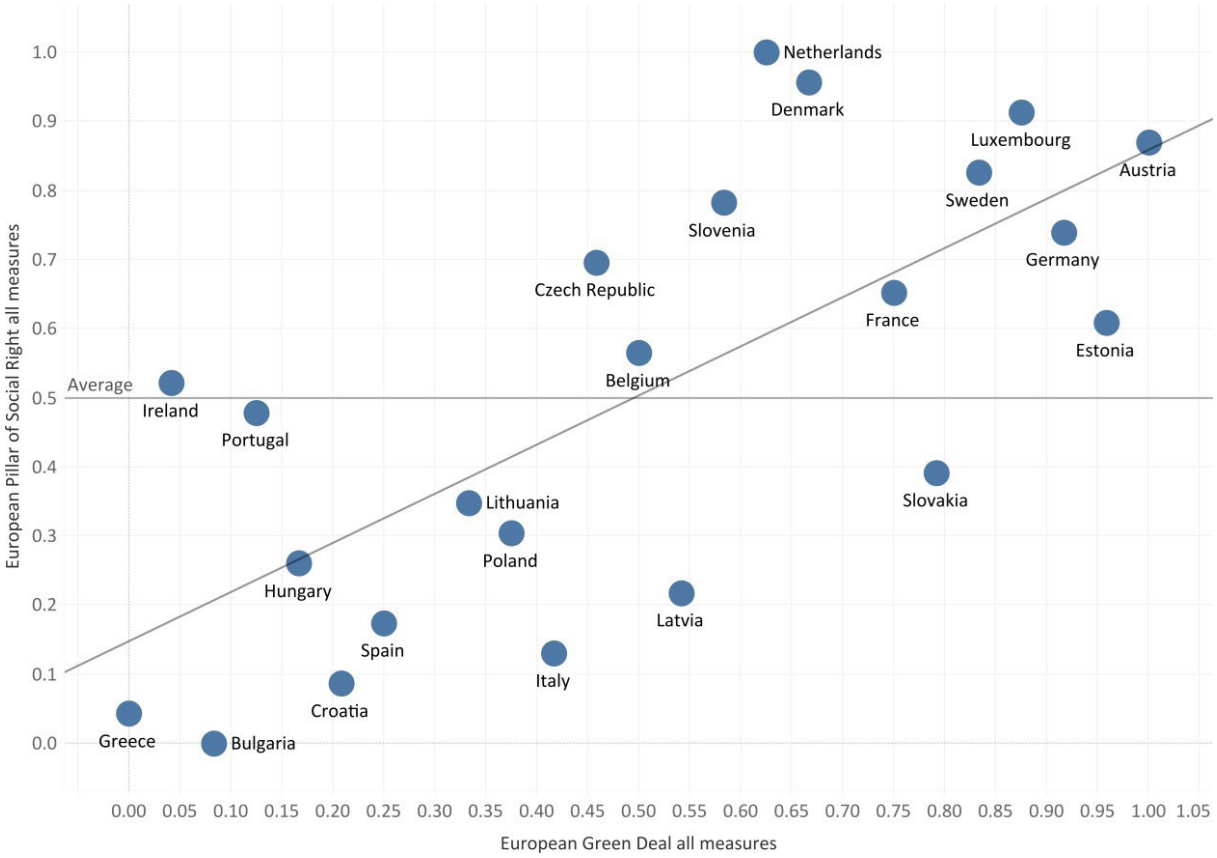

FIGURE 5: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs Eight European Green Deal Action Areas. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

4 An in-depth analysis of each European Green Deal action area

The overall picture of the EGD and its connection to the EPSR must be accompanied with a more detailed action area by action area examination. The structure of the Green Deal means that there is a compartmentalisation of themes set out in table 1 (referred to below sometimes as 'action areas') to be explored throughout the duration of this initiative. We assess below from the perspective of the EPSR, and its key indicators as set out in table 2, the extent to which this conceptualisation of social justice relates to the performance of member states on the themes of the EGD. This section elaborates further on research questions 1 and 2 that relate to the gaps in knowledge on each action area of the EGD and the identification of where policy responses are most urgently needed. Our analysis looks at the relationship between the EPSR indicators with each EGD action area, ranking member state performance across the study period, as well as investigating changes longitudinally during this period. Where relevant, comments are made on the observations relating to noteworthy trends within the state, for example between the individual themes of the EPSR or individual indicators in the EGD.

On data completeness, we strove for maximum national representation in our analysis. At times, some countries were excluded for geographical reasons (for example not having a coastline) or when data was unavailable. We present below the fullest account of ranking performance of each member state in accordance with the EPSR and EGD data sets outlined in section 2. For the purposes of this section, we removed two (from the 17) indicators for the overall EPSR combined measures as their incomplete data reduced the level of analysis that we could deliver for individual EGD action areas. The overall impact on the ranking was tested and was found to be minimal in each case, but it did conversely allow for including those countries where data was not available on these two measures. These measures include an 'individual's level of digital skills' from the first category (equal opportunities and access to the labour market) and 'adjusted gross disposable income of households per capita' from the second category (fair working conditions).

4.1 EGD theme 1 – Increasing climate ambition

Unlike the overall connection between EPSR and EGD, we find no correlation between these social rights indicators and 'increasing climate ambition' (R2=0.07). 'Social protection and inclusion' scores have a marginally stronger correlation with this action area when considered separately (R2=0.16), but we do not find that member states with strong social rights have better or worse scores for 'increasing climate ambition' than those with poor social rights. Rank percentiles of this index were plotted against the overall EPSR score (Figure 6), and four key groups of member states were identified. The states scoring highly for both social rights and climate ambition were Sweden and Denmark, while those with good social rights performance and a poor emissions score were Luxembourg, Netherlands and Austria. Of the member states with poor social rights scores, we find that Greece, Spain and Poland have poor emissions scores, while Baltic and central/eastern states performed well for EGD 1 given the extent of their emission reductions.

'Increasing climate ambition' was represented by a single indicator: net greenhouse gas emissions (source: EEA, sdg_13_10). These data were provided in two formats: in tonnes per capita, and as an index showing changes in net greenhouse gas emissions since 1990 (1990=100; 'I90'). As these data reflect not only the emissions scaled by population but also a longer-term trajectory of change, they were combined to create a rank percentile to represent 'increasing climate ambition'. We found that the best performing member states for EGD 1 (i.e., those with relatively low emissions per capita as well as the greatest reductions in emissions since 1990) were Lithuania, Romania and Latvia, followed by Hungary and Sweden. At the lower end of the scale, Ireland, Cyprus, Luxembourg, Netherlands and Austria have the highest emissions per capita accompanied by the least impressive reduction in emissions since 1990.

Evaluating net greenhouse gas emissions on a year-by-year basis, we see that member states have shown a collective steady decrease in emissions in tonnes per capita between 2010 and 2015. Between 2015 and 2017 this trend reversed and, by 2017, EU-wide emissions were back to 2012 levels. Emissions levels have dropped again steeply during 2018-2020. Looking at member states individually over time, we see that the largest greenhouse gas emitter per capita, Luxembourg, has shown by far the biggest drop in emissions between 2010-2020. Malta, Denmark and Greece follow, showing a significant reduction in emissions during that decade. Several states have experienced erratic

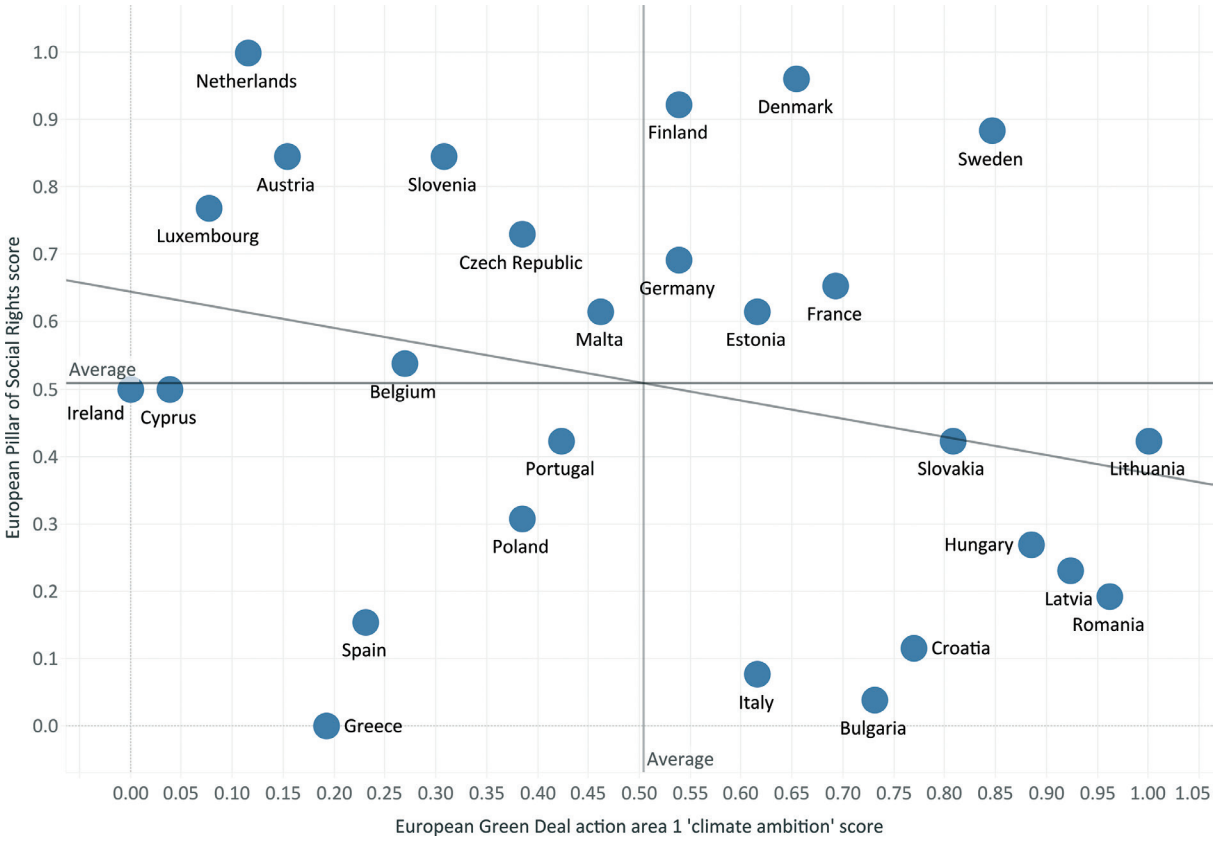

FIGURE 6: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 1 on 'climate ambition'. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

patterns of emissions over time, specifically Slovenia whose emissions were disproportionately high from 2014- 2018, and Portugal which experienced a spike in 2017. However, the only member states who had higher emissions per capita in 2020 than in 2010 are Lithuania and Latvia: Lithuania is the only member state to show a steady year-on-year increase in greenhouse gas emissions per capita during the 2010s.

4.2 EGD theme 2 – Clean, affordable and secure energy

We found that member states that scored highly for 'clean affordable and secure energy' also scored highly for social rights (Figure 7). As can be seen in Figure 7, the relationship is strongest the higher the scores. This is most clearly seen in the top right quadrant. Similarly, the member states scoring poorly for EGD 2 also score poorly for social rights. Investigating the three social rights themes separately, we find that the correlation with EGD 2 is strongest when 'Equal opportunities and access to the labour market' is considered in isolation (R2=0.66 vs overall social rights R2=0.53). To conclude, we find that member states with high social rights, without exception, have a high proportion of renewable energy consumption, high amounts of energy availability per capita and a lower proportion of their population unable to heat their homes.

Because of its three-part title, EGD 2 was represented by three individual indicators: 'Share of renewable energy in gross final energy consumption by sector' ('clean'), 'Population

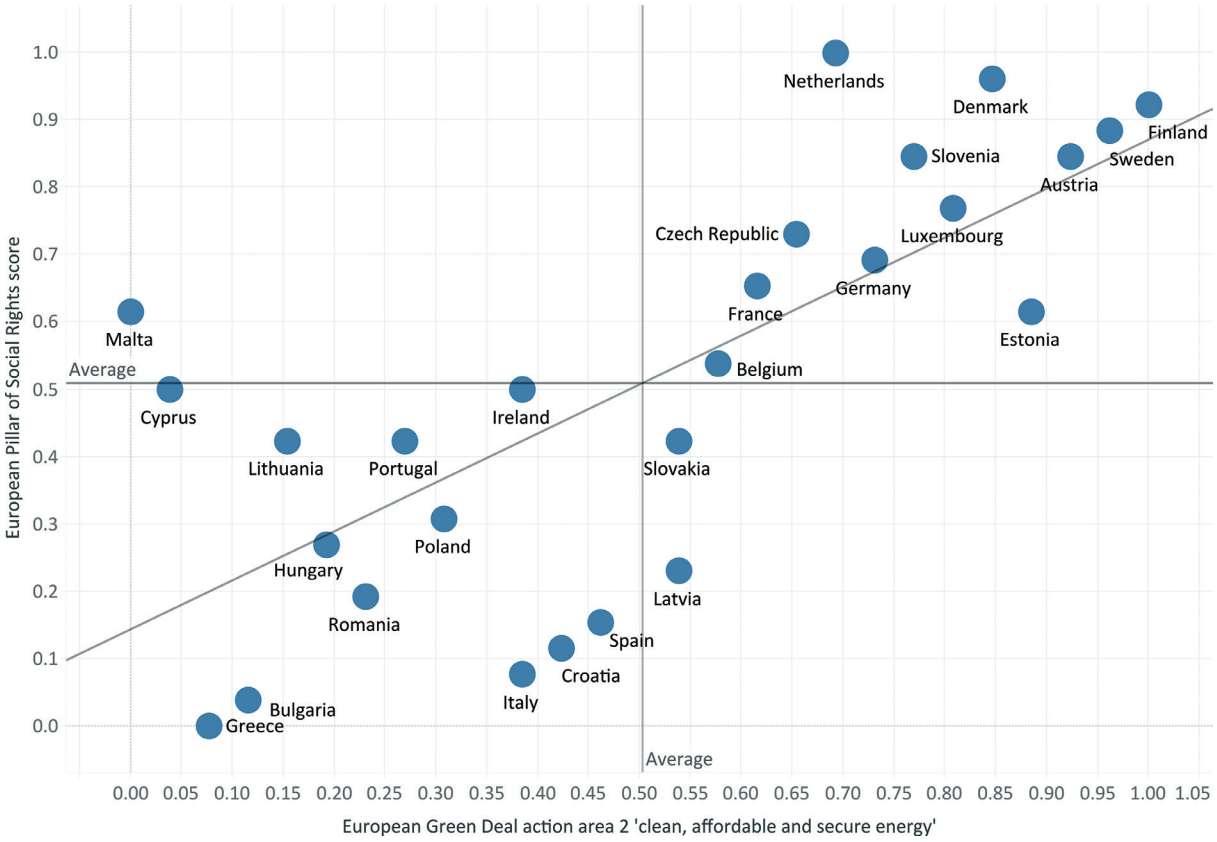

FIGURE 7: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 2 on 'clean, affordable and secure energy'. High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.

unable to keep home adequately warm' ('affordable'), and 'Available energy, energy supply and final energy consumption per capita' ('secure'). These data were combined to create an EGD 2 rank percentile which was used to assess member states' performances for the theme of 'clean, affordable, secure energy'. Sweden, Finland and Austria scored highest for EGD 2, and Malta, Cyprus and Greece lowest. Reflecting the close relationship between all the EPSR measures and EGD 2, the leaders were the same with the addition of Denmark. The worst overall performers include Greece and Bulgaria. These results are dependent upon the equal weighting between each of the three individual measures. We move on to consider each of the three measures in turn.

The measures for affordable and secure energy followed a similar pattern to the overall scores outlined above. There is little change in member state rankings in each. The clean energy measure of the share of renewable energy in gross final energy consumption by sector only modestly correlated with the EPSR measures. The front runners were similar in composition, namely Denmark, Austria, Finland and Sweden. The remainder were dispersed, with, for example, Latvia, Portugal and Croatia doing well on this measure while struggling relatively on the EPSR measures. From a longitudinal perspective, the ranking of the majority remains steady throughout the study period. Some notable exceptions include Spain, Italy and Greece who experienced modest reductions in ranking. From the opposite perspective, Poland, Lithuania and Ireland improved their rankings. The shift in positioning was not a significant factor overall when considering the performance of countries in this EGD action area.

4.3 EGD theme 3 – Industry for a clean and circular economy

There was a strong geographical component to the results on this EGD action area. It was represented by 'circular material use rate', a ratio of the circular use of material to the overall material use, which was converted to a rank percentile for each member state. We found that, by and large, the mid-section of the EU had high circular material use, compared with the far west and far eastern states. Exceptions here are Estonia, Poland and Finland, which have high circular material use. Sweden has slightly below average circular material use compared to the rest of the member states. This is in line with expectations as a geographical overview considering the variation between more and less developed nations. Future analysis in this area should explore the cases of Sweden, Denmark and Spain further.

The relationship between the EPSR social measures and the performance of member states on clean circular economy was strong. When plotted against the EPSR score (Figure 8), we find that all member states with a high social rights score have approximately average or above average circular material use rates. Sweden is slightly below average, while Denmark sits at the exact mid-point for EGD 3. While most of the states with poor social rights scores also have low circular material use, Italy, Poland and Spain are exceptions, with high use of circular materials relative to raw materials. Ireland, Portugal and Cyprus, all with average social rights scores, are the three poorest-performing states for EGD 3. Netherlands comes top for circular materials use, while also scoring highest for social rights. There was overall an intimate connection between social justice in line with EPSR and EGD 3.

The most interesting observation on EGD 3 was a significant variation in ranking over the study period. This is difficult to represent visually and would be worthy of further investigation in a separate analysis. The following

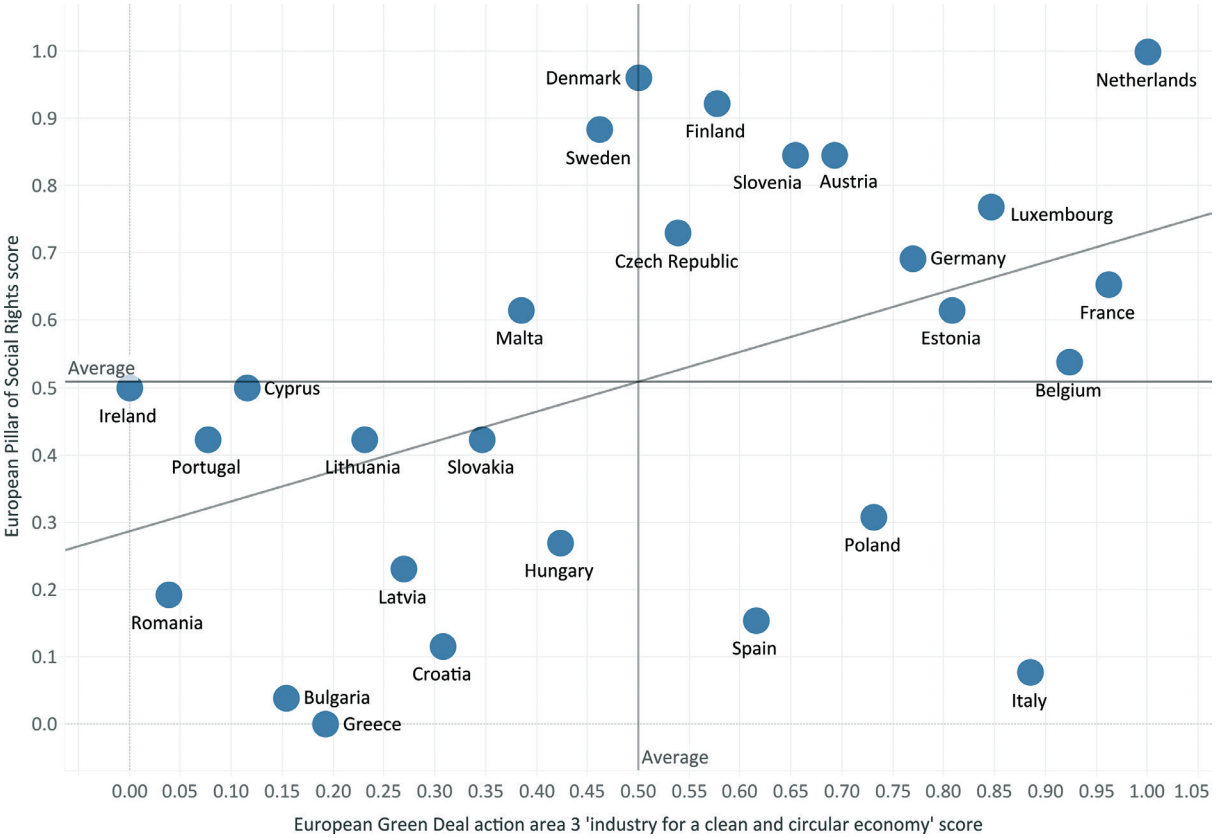

FIGURE 8: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 3 on 'industry for a clean and circular economy'. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

countries had significant rises in ranking: Austria, Belgium, Czech Republic, France and Italy. Those with the steadiest decline in performance included: Ireland, Luxembourg and Romania. We do not conclude that each country rose or declined in absolute terms, but rather relative to each member state's performance. This thematic area of the Green Deal appears as the most unstable and warrants future attention.

4.4 EGD theme 4 - Energy and resource efficient buildings

The proportion of near-zero-energy buildings (NZEB) in new construction, both residential and non- residential, were used to represent this EGD indicator. These data were obtained from the EU Buildings database, as no indicators related to buildings' energy efficiency were found on Eurostat. Geographically, the northernmost (Sweden and Finland) and southernmost (Spain, Portugal, Italy, Malta, Cyprus and Bulgaria) member states were among the worst performers on this EGD, having among the lowest proportion of near-zero-energy buildings in new construction. An exception to this, however, is Greece, who outperforms its southern neighbours by occupying the midpoint rank percentile for EGD 4. Czech Republic and Poland were poor performers, while the Baltic states, Romania and Ireland were among the highest-scoring member states for new buildings' energy efficiency. Luxembourg, Denmark and Austria were ranked top for EGD 4, and Bulgaria, Malta and Sweden bottom.

There is a weak relationship observed between the EPSR measures and the overall performances of member states on EGD 4.

Figure 9 shows a clustering effect among various groups of countries that are worthy of reflection here. We find that, among states with high social rights scores, Denmark, Luxembourg and Austria form a cluster of member states having a high proportion of NZEB new builds, while Sweden, Slovenia and the Czech Republic have a low proportion (Figure 9). A correlation between EGD 4 and EPSR is minimised by the high performance of Romania in energy efficient buildings (combined with a poor score for 'Equal opportunities and access to the labour market' and 'Social protection and inclusion'), and Sweden, the Czech Republic and Slovenia's poor EGD 4 score. And lastly, there was less variation across time in terms of the ranking performance of each member state than for EGD 3, with the exception being Estonia which increased its performance since 2014.

4.5 EGD theme 5 - Sustainable and smart mobility

Like EGD 4, there was a noteworthy relationship but equally weak between EPSR and the EGD measurements. This EGD was represented by three individual indicators: 'Modal split of freight transport' (freight transported by rail or inland waterway), 'Modal split of passenger transport' (by train, tram or bus), and 'Share of zero emission vehicles in newly registered passenger cars'. These data were combined to create an EGD 5 rank percentile. The geographical distribution of high performing states spans the midsection of the EU, with most of the Baltic states also performing well.

Austria, Latvia, Estonia and Hungary score highest, followed by the Netherlands. The southern- and westernmost (Greece, Cyprus,

FIGURE 9: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 4 on 'energy and resource efficient buildings'. High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.

Croatia, Spain, Portugal, Italy and Ireland) states perform the poorest for the proportions of passengers using public transport, non-road freight transport and new zero emissions vehicles.

When plotted against the overall EPSR score (Figure 10), we see that all states scoring highly for social rights also score highly for sustainable and smart mobility, apart from Slovenia and Finland. This allows us to specify that the overall weak relationship between EPSR and this EGD is strengthened at the upper end of performance where high rankings in social justice matched closely with sustainable and smart mobility. Conversely, states scoring poorly for social rights also score poorly for zero-energy, non-road and public transport, with three high-scoring exceptions: Latvia, Hungary and Slovakia. Examining the three social rights themes separately, we find that 'fair working conditions' is the theme most correlated with EGD 5, increasing the R2 from 0.15 (overall EPSR) to 0.33 ('fair working conditions' only).

Unlike EGD 4, there was more significant variation in ranking performance over the study period. Member states tended to switch positions on a more frequent basis. The most notable examples included Ireland which increased ranking performance from 0.115 to 0.654 from 2016 to 2020 as well as the more stable increase in ranking experienced by Sweden that steadily increased from 0.542 to 0.85 across the entire study period. Bulgaria and Slovakia experienced the most notable decreases in performance. Unlike EGD 3, the shifts in ranking tended to be more stable and less pronounced. This indicates that this pol-

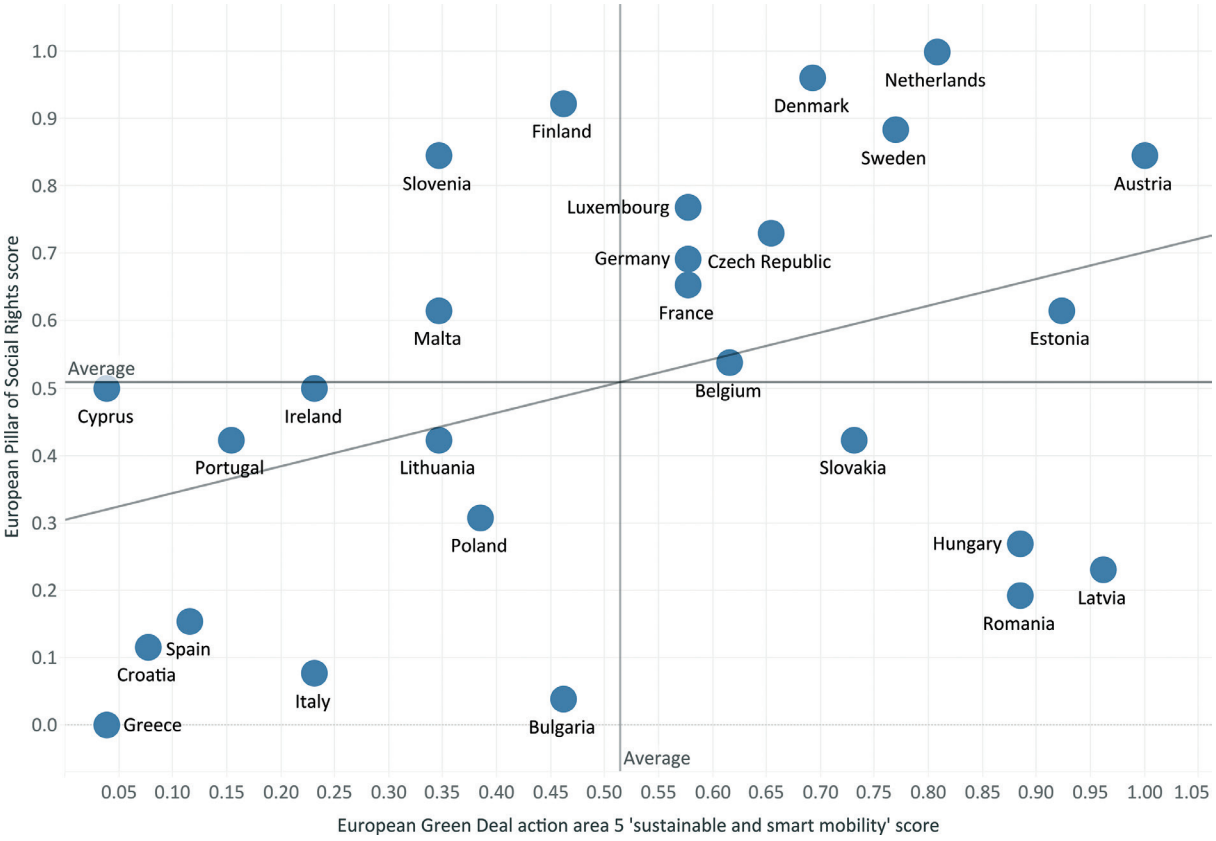

FIGURE 10: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 5 on 'sustainable and smart mobility'. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

icy field is more established than the circular economy for example, but nonetheless would warrant further investigation. There is also a notable variation with regards to the social measures of EPSR. The first two themes were in fact more closely correlated to performance on sustainable and smart mobility. The weakness in a relationship was most apparent for the third theme of EPSR, 'social protection inclusion'. This observation held across the member state samples.

4.6 EGD theme 6 - Farm to fork

Another multifaceted EGD, farm to fork was represented by five individual indicators: 'Area under organic farming', 'Prevalence of moderate or severe food insecurity in the adult population (%)', 'Agriculture orientation index for government expenditures', 'Productivity of large-scale food producers (agricultural output per labour day, PPP) (constant 2011 international $)' and 'Productivity of small-scale food producers (agricultural output per labour day, PPP) (constant 2011 international $)'. These indicators represent food security, production, consumption, biodiversity and waste, and were weighted equally to create an EGD 6 rank percentile. Only one of these indicators ('area under organic farming') was obtained from Eurostat's 'Statistics for the European Green Deal' website; the other four are SDG 2 and SDG 12 indicators. The best-performing member states are localised to Scandinavia (excluding Denmark), the Baltic states, central Europe (excluding Hungary and Croatia), Luxembourg and Italy. Austria is the best performing for EGD 6 and Hungary the worst. Western

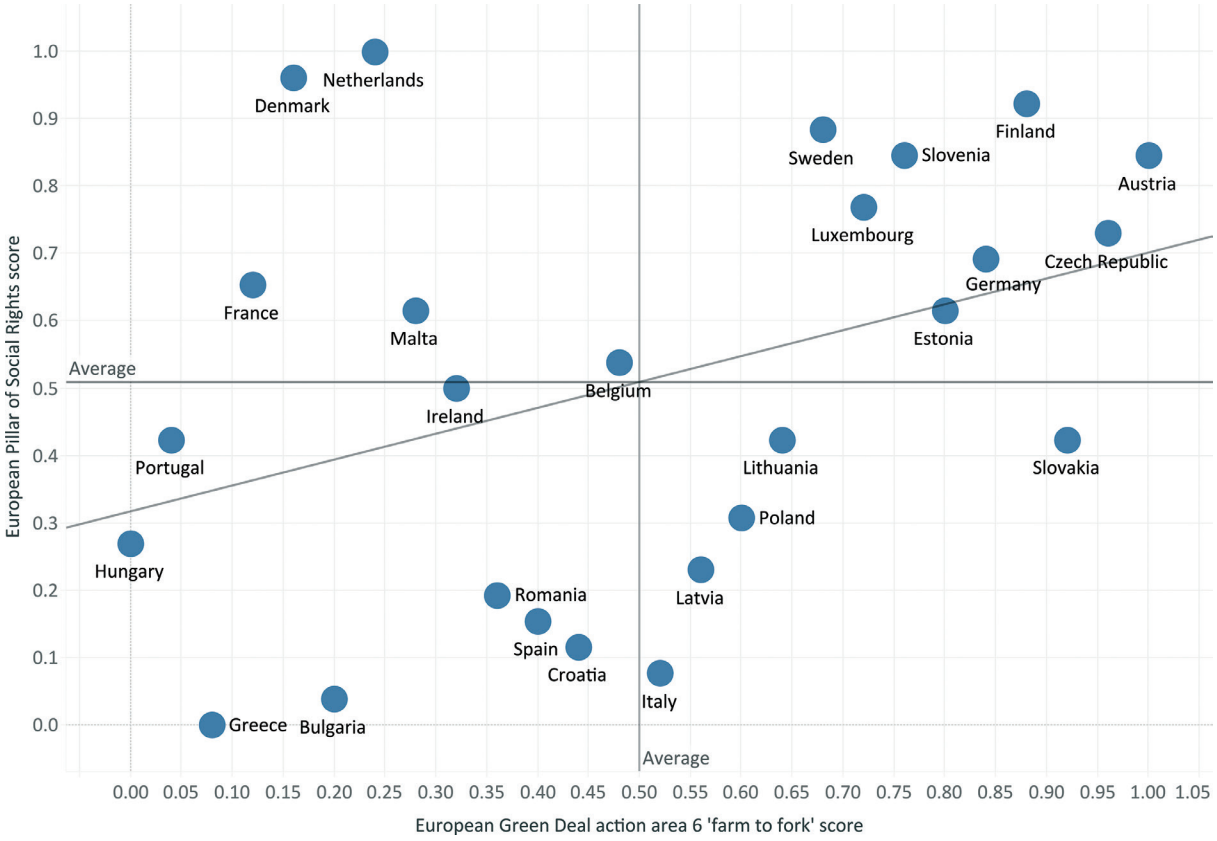

FIGURE 11: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 6 on 'farm to fork'. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

European member states (excluding Luxembourg), south-eastern member states and Denmark all strikingly perform below average. Plotted against EPSR, Figure 11 shows a comparable lack of correlation with social rights for EGD 6 as was the case with EGD 1, both themes having a geographical pattern not shared by EPSR scores. However, we see how the high- and low-performing states for social rights perform on 'farm to fork'. Netherlands and Denmark stand out as states with high social rights scores that have low scores for EGD 6. France, with an above-average social rights score, performs the fourth most poorly for EGD 6 (after Hungary, Portugal, and Greece). Conversely, Slovakia is notable as a state with below- average social rights score but the third highest score for EGD (after Austria and the Czech Republic). Looking at the three social rights themes individually, we see that no one theme stands out as more correlated with 'farm to fork', although 'social protection and inclusion' appears to be the least correlated of the three. Changes over time were equally observed to be insignificant for this EGD.

4.7 EGD theme 7: Biodiversity and ecosystems

We found no relationship between EPSR social rights measures with member state performance on biodiversity and ecosystems. This EGD is represented by 'Share of forest area (or other wooded area)' and 'Protected areas' (both terrestrial and marine). Because five EU member states have no coastline, EGD 7 is analysed as EGD 7a ('Share of forest

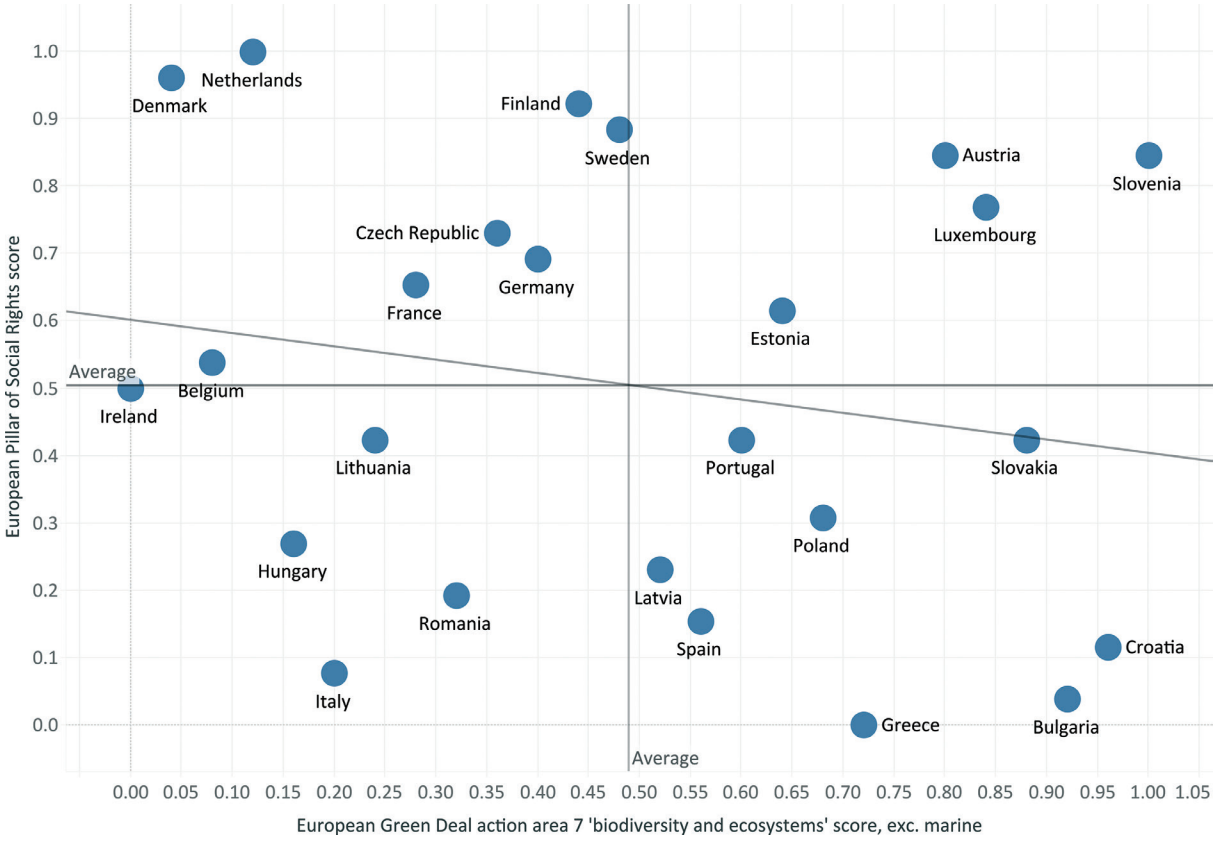

FIGURE 12: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 7 on 'biodiversity and ecosystems', excluding marine protected areas. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

area', 'Protected areas – terrestrial') which includes all member states (as depicted in Figure 12), and EGD 7b ('Share of forest area', 'Protected areas – terrestrial', 'Protected area – marine') which necessarily excludes Luxembourg, Austria, Czech Republic, Slovakia and Hungary.

Geographically, we find that EGD 7a performance is highest in the Iberian Peninsula, several Baltic and eastern/central European states, and Luxembourg. Slovenia, Croatia, Bulgaria and Slovakia have the most wooded and protected land areas, while Ireland, Denmark, Belgium and the Netherlands have the least. It shows the highest and lowest performers for EGD 7a and EPSR. We find that, of the states with highest social rights scores, the easternmost states (except Czech Republic) have a high proportion of wooded and protected land areas, while states with high social rights scores further west have among the least. Low-social-rights states with high proportions of wooded and protected land are Bulgaria, Greece, Croatia, Poland and Slovakia. In contrast, low-social-rights states with less wooded and protected land are Hungary, Lithuania, Italy and Romania.

When marine protection is taken into consideration alongside protected and wooded land, the states with a coastline rank as follows: Poland takes top ranking from Slovenia in second place, followed by Croatia who remains in third. Ireland and Denmark retain bottom place, Belgium moves up to fourth from bottom while Italy moves to third from bottom. The biggest drop in rankings are Cyprus and Portugal, indicating that their marine conservation is comparatively poor. Italy's ranking also drops slightly. However, the addition of marine protection as a component of EGD 7b enables Germany, Poland and France to significantly climb the rankings. The ranking of Netherlands and Lithuania also improves by the consideration of marine protection. We find no correlation between EGD 7a or EGD 7b and social rights performance (Figure 12), either overall social rights or when each of the three social rights themes are plotted separately. Lastly, members say rankings across time do not vary in any significant or noteworthy way.

4.8 EGD theme 8 - Zero-pollution, toxic-free environments

This EGD is composed of 'national expenditure on environmental protection by institutional sector' and 'years of life lost due to PM2.5 exposure' (number of years of life lost, per 100,000 people), both representing control of pollution levels. There is a striking concentration of poorly performing states in eastern Europe, the southern Baltic states, Greece and Cyprus. The lowest scores are Bulgaria, Latvia and Croatia. In contrast, the lowest level of air-quality-related deaths and highest national spending on environmental protection are in Sweden, France and Spain. A longitudinal perspective on the data provides some worrying examples of degrading performance in the area, for example Greece dropping from a ranking of 0.5 to 0.04 from 2010 to 2017. But overall, the trends maintain a steady incline or decline for most member states with little variation across time in this regard.

Plotted against EPSR, Figure 13 shows an analogous strong correlation for EGD 8 as for EGD 2. To put it simply, there is a strong relationship between the EPSR measures and the member state performances on EGD 8. The strongest performers include a group of four countries in particular, Denmark, Finland, Netherlands and Sweden. Average performers include countries such as Belgium, Cyprus and Estonia. Poor performers on this EGD are primarily based in Eastern Europe including Bulgaria, Croatia, Romania and Hungary. The correlation is therefore strong, including when considered geographically. Looking in more depth at the correlation between the individual measures of EPSR and EGD 8, we note that themes one and three demonstrate strong relationships whilst the second theme of fair working conditions has a notably weaker relationship.

A deeper look into the relationship between the EPSR and the EGD shows ample variation between those countries that are performing well and those who are relatively lagging on key targets. We can conclude that to understand the potential of Europe's overall performance on achieving a sustainable transition a comprehensive analysis of member state performance on each thematic area is necessary. Assumptions on which countries are performing well and those that are not have both been dispelled and reinforced throughout our analysis. In both cases, the relationship with the EPSR social justice measures, summarised in Table 3, elucidates on the complexities involved in understanding whether a country is performing well or badly. To achieve the core targets of any given EGD, another factor to be considered is whether these actions bolster or hinder social justice. For sustainable outcomes, it is evident that improving both on core targets for EGD themes and social justice should be an explicit goal of all policy actions in this area. With this in mind, we move on to detail the primary recommendations that emerged from this analysis.

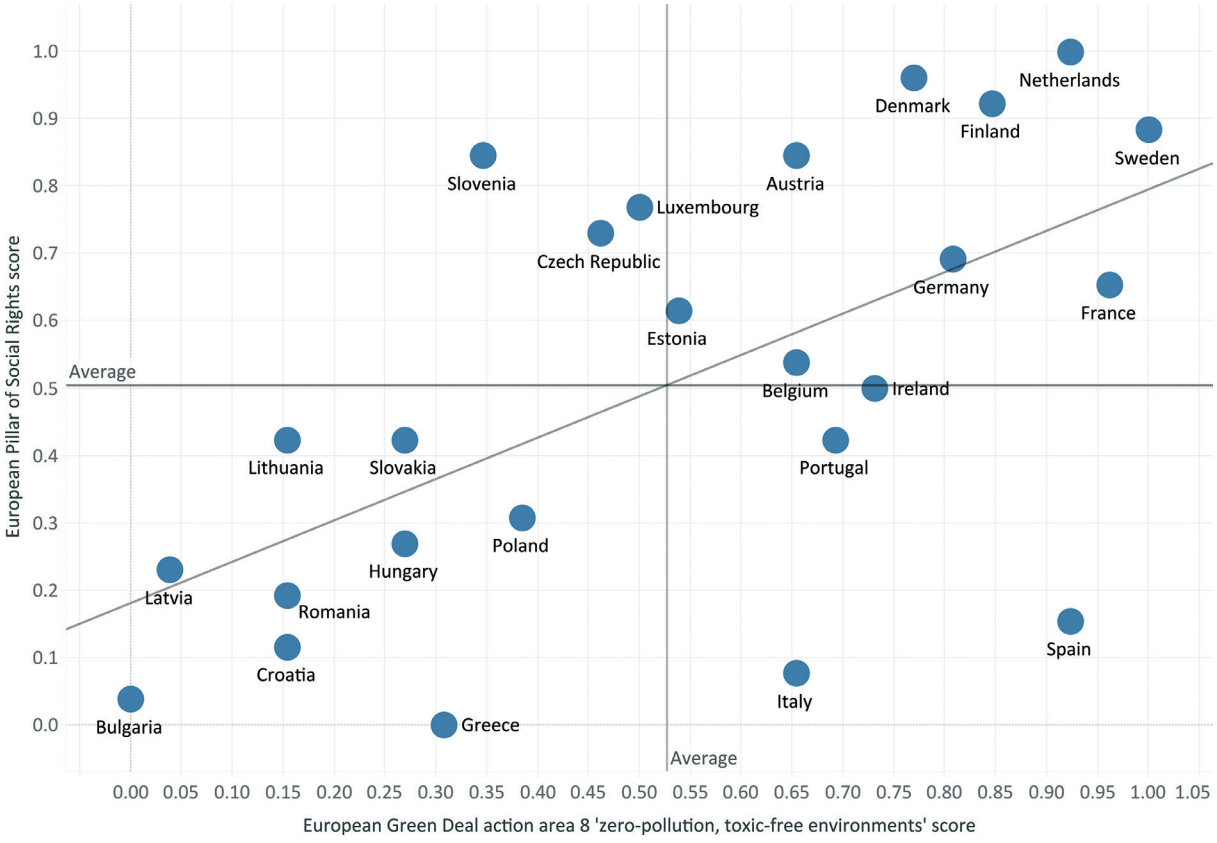

FIGURE 13: Rank percentile scores of EU member states for the three European Pillar of Social Rights themes vs European Green Deal action area 8 on 'zero-pollution, toxic-free environments'. *High scores indicate high performance and vice versa. The horizontal and vertical lines show where the average is for each score, making visualisation easier. The other line indicates if there is a close relationship (if going up from left to right) or vice versa.*

Table 3 Correlations between European Green Deal and European Pillar of Social Rights themes: Green squares indicate a strong positive correlation (R2), yellow indicates a weak/moderate correlation, red indicates no correlation

		European Green Deal	1 Increasing climate ambition	2 Clean, affordable, and secure energy	3 Industry for a clean and circular economy	4 Energy and resource efficient buildings	5 Sustainable and smart mobility	6 Farm to fork
	European Green Deal	1						
1	Increasing climate ambition	**0.00**	1					
2	Clean, affordable, and secure energy	**0.74**	0.00	1				
3	Industry for a clean and circular economy	**0.41**	0.05	0.34	1			
4	Energy and resource efficient buildings	**0.19**	0.00	0.11	0.08	1		
5	Sustainable and smart mobility	**0.37**	0.12	0.26	0.09	0.16	1	
6	Farm to fork	**0.43**	0.00	0.36	0.09	0.01	0.09	1
7	Biodiversity and ecosystems (excluding marine)	**0.02**	0.04	0.00	0.02	0.09	0.00	0.13
	Biodiversity and ecosystems (including marine)	**0.01**	0.01	0.00	0.02	0.08	0.04	0.11
8	Zero pollution, toxic free environments	**0.16**	0.14	0.33	0.28	0.02	0.00	0.00
	European Pillar of Social Rights	**0.51**	**0.07**	**0.53**	**0.20**	**0.09**	**0.15**	**0.14**
1	Equal opportunities and access to the labour market	**0.47**	0.01	0.66	0.19	0.09	0.17	0.23
2	Fair working conditions	**0.41**	0.02	0.30	0.14	0.08	0.33	0.15
3	Social protection and inclusion	**0.37**	0.16	0.39	0.19	0.02	0.01	0.06

		7 Biodiversity and ecosystems (excluding marine)	7 Biodiversity and ecosystems (including marine)	8 Zero pollution, toxic free environments	**European Pillar of Social Rights**	1 Equal opportunities and access to the labour market	2 Fair working conditions	3 Social protection and inclusion
	European Green Deal							
1	Increasing climate ambition							
2	Clean, affordable, and secure energy							
3	Industry for a clean and circular economy							
4	Energy and resource efficient buildings							
5	Sustainable and smart mobility							
6	Farm to fork							
7	Biodiversity and ecosystems (excluding marine)	**1**						
	Biodiversity and ecosystems (including marine)	0.56	1					
8	Zero pollution, toxic free environments	0.13	0.18	1				
	European Pillar of Social Rights	**0.02**	**0.04**	**0.33**	**1**			
1	Equal opportunities and access to the labour market	0.00	0.01	0.23	0.80	1		
2	Fair working conditions	0.00	0.06	0.11	0.67	0.42	1	
3	Social protection and inclusion	0.04	0.00	0.39	0.75	0.54	0.28	1

5 Recommendations

Our overall aim was to explore whether the EU can lead on delivering a just transition. Our conclusion is that this is possible if policy actions are taken in a way that is recognisant of (1) the varying needs of all member states and (2) the full gamut of social justice commitments. The application of EPSR key indicators to the eight action areas of the EGD has provided multiple data-driven observations based upon EU individual member state performances. It shows the value of relative analyses for understanding where policy actions should be targeted geographically in the EU to improve EGD outcomes in a way that considers trends in social justice indicators. We detail firstly the overall recommendations that emerge from our analysis for ensuring that the EGD can better inspire just transition in Europe. Each action area of the EGD is then considered in relation to the analysis set out above. Policy recommendations are briefly outlined for each EGD. We then conclude with recommendations for future applications and further research.

5.1 Overall recommendations for a Green Deal inspired just transition in Europe

The EGD should be designed to further the objectives of just transition. We identified in the introduction that the current iteration of just transition in the EGD is overly focused on the energy transition away from fossil fuels without considering the broader implications involved in achieving a just transition in Europe. The second part of our definition went on to elaborate that a just transition should be one that is 'disrupting, reconfiguring and usurping the prevailing carbon intensive global top-down regime with one that places social justice at the heart of a new sustainable, inclusive and green bottom-up community driven future'. The wider remit of the EPSR key indicators for social justice offers a step forward to responding to these objectives of just transition. We reflect below on four key overall recommendations that result from applying the EPSR key indicators to the action areas of the EGD.

5.1.1 Justice is more than citizen inclusion

A wider narrative on justice is necessary in the Green Deal. The European Pillar of Social Rights measures and key indicators are one small step in a more progressive direction. Alternative frameworks of justice should also be addressed in future. There is a tendency in European policymaking to oversimplify social justice, narrowing it down to the requirement that local citizens be included in key decisions on the transition, in part the basis for the wider Green Deal phrasing of 'leaving no one behind'. Inclusion is indeed an integral principle. But it should also be combined with other areas of concern such as social protection, fair working conditions and equal opportunities and access to the labour market. This wider perspective of social justice opens a more critical and meaningful approach to just transition in Europe. It offers moreover a framework for examining the extent to which policy actions on the EGD are promoting both sustainability and justice.

5.1.2 Unleash the power of social justice

The individual actions of each Green Deal theme should explicitly consider not only their impact on processes and outcomes, but also how they can proactively improve both social justice and Green Deal actions. The structural embedding of justice within the Just Transition Fund has meant that social justice is too limited in application. Just transition involves more than solving energy issues. Justice should

be an integral component for understanding whether actions on the Green Deal theme are leading to sustainability or not, be it increasing climate ambition, circularity and industry, sustainable buildings, mobility, energy, agriculture, managing ecosystems or biodiversity. Compulsory reporting from member states to the European Commission is urgently required in each case on the impacts of actions, positive or negative, on social justice as well as the actions taken to improve social justice. Member states should work closely with civil society in data gathering, analysis and monitoring performance.

5.1.3 Scrutinise real-world data for justice-aware policy action

Rhetoric and ambitious targets need to be replaced with more systematic analyses of real-world data and trends. This is even more important with the increased prevalence of debilitating crises or exogenous shocks such as climatic events, pandemics, conflict and terrorism. An ability to react, and proactively formulate effective strategies, is predicated on accessing reliable information. Transparent, accountable, and publicly accessible indicators and data on each area of the Green Deal must be a priority. The dearth of up-to-date open access data in relation to each EGD is severely hampering efforts for it to be understood, recorded and reframed. This is leading to a narrowing of the Green Deal agendas in both scope and application, often based upon scant existing data, or even worse, loosely based assumptions. The structural flaw in the EGD programme means that social justice indicators are too often overlooked. The EPSR key indicators offer an initial and interim solution. But this needs to be combined with a similar attempt for the EGD programme of action areas.

5.1.4 Territories of 'relative need' rather than 'fossil fuels'

Green Deal policy actions and associated funding should target all geographical areas where need is relatively more urgent. There should be recognition that such need will change over time. The term 'territories' is used by the EU's Just Transition Fund which refers to 'carbon-intensive' regions. The widespread nature of the Green Deal action areas mean that such a narrow view of 'need' is unhelpful. Some member states lead on certain issues, whilst others lag. Then the picture is reversed on another topic. This is even more pronounced when the social justice principles of EPSR are integrated into an analysis. A wider appreciation of need is therefore urgently required, one that does not limit just transition to the need to level up areas of fossil fuel extraction. Policy actions are equally applicable in territories of member states who are lagging on the full range of social justice and Green Deal issues. The terms of application to the Just Transition Fund should be expanded.

5.2 Recommendations on the European Green Deal action areas

We set out the section below to clearly indicate firstly what the overall message is for performance improvements to be achieved across each of the EGD action areas. Due to word limitations, we do not specify detailed actions in each regard as these will differ depending on the member states in question. We employ words such as 'commitments' or 'policy action' in the sense to encourage legislative or voluntary measures to be considered. Future research in this area should seek therefore to specify how best to evaluate and implement actions within member states. The second component of our recommendations involves reflecting explicitly on which member states to focus attention on. In line with our overall recommendations section, more explicit thinking

is recommended to identify which member states need support. In this way, we aim to encourage a systematic rejection of lazy assumptions or oversimplifications with regards to where support or action is most urgently needed.

5.2.1 EGD 1: Reconnecting climate ambition with justice

This scientific urgency to improve climate performance among member states must not be used to avoid improving social justice. This is a view also put forward in existing research by, for example Pianta and Lucchese (2020). To increase climate ambition must also include clear commitments towards increasing fair working conditions, improving social protection and inclusion as well as delivering more opportunities on an equal basis to access the labour market. Our results suggest that member states should be urged to report on an annual basis what measures they have undertaken to make such commitments. Without this, there is a real danger that short-term progress is replaced by long-term structural issues that may endanger the improvements being made. The countries with the most improved performance including Lithuania, Romania and Latvia for example, may interpret these initial gains as resulting despite of their commitments to social justice. In the short-term, such arguments could prevail. But long-term, the structural imbalances in social protection and labour market may disrupt their progress. We also recommend more practical measures to help the larger economies such as the Netherlands or Austria make more progress. Commitments to improving social justice should be more explicitly tied to ambitious climate targets, thereby creating more positive reinforcements in policy actions. The European semester, for example, is a process through which this can be ensured or at least improved.

5.2.2 EGD 2: Building further on the European energy sector's push for social justice

The energy sector has emerged in our data as a relative leader in connecting social justice concerns with real-world improvements in renewable energy increases, supporting households and supplying greater energy consumption. This finding contradicts much of existing literature that is populated with negative examples of ignoring social inclusion (Bouzarovski, Thomson and Cornelis, 2021), developing worse working conditions (Bauknecht, Andersen and Dunne, 2020), or having negative impacts on labour markets (Barbieri and Cutuli, 2016). The data does not support this. The authors of this report are not too surprised by this finding given the increased awareness of more inclusive energy developing processes in the EU and the positive labour market impacts from greater renewable energy deployment. In relative terms to other EGD action areas, the energy sector demonstrates the strength of positive reinforcement in promoting and improving social justice with concrete EGD targets. The focus for policy action should be tailored, firstly, for outlier nations where either social justice has been promoted but not clean, affordable and secure energy or vice versa such as Latvia, Portugal and Croatia. More generally, support is urgently needed among the relatively low performing nations that include Poland and Hungary, but also countries such as Spain, Greece, Bulgaria or Lithuania. We recommend therefore a more systematically targeted set of actions not only in fossil fuel geographical regions.

5.2.3 EGD 3: Sharing best practice in circularity and industry

Circular economy has an intimate link with social justice (Härri, Levänen and Koistinen, 2020; Sulich and Sołoducho-Pelc, 2021). This is both the case in terms of our data as well as from a more abstract perspective. The desire to ensure the sustainability of industrial supply

chains and waste practices appears relatively embedded within a similar commitment to improving social justice. Touching upon underlying data, larger and more well-established modern industrial sectors in member states such as Germany, France or the Netherlands seem to encourage and maintain positive relative performance on the EPSR social justice measures. We recommend best practice sharing as a practical route for improving the performance of lagging nations, especially where social justice measures appear least impressive, such as Bulgaria, Greece, Italy or Spain. From this perspective, policy actions should seek to expose the worst performing nations on circular economy to the dual reinforcing positivity of embracing modern industrial sectors that promote circularity alongside social protection, better working conditions and fairer labour markets. Unlike EGD 2, we recognise the picture is more mixed. Performance appears to vary greatly across time, and the multiplicity of sector-based data means that further research should investigate the sector-by-sector nuances involved in promoting circularity and social justice.

5.2.4 EGD 4: Moving buildings up the EGD policy agenda

It is time to take buildings seriously. The lack of consistency in placing energy and resource efficient buildings as an equally important EGD action area means that this important stand-alone factor in achieving sustainability in Europe is becoming subsumed into broader energy priorities (Krämer, 2020; Bongardt and Torres, 2022). The fact that the European Commission published Eurostat data on EGD action areas without considering the specific importance of buildings is a demonstration of its declining importance in the overall EGD agenda. This needs to change. In addition to placing buildings higher up the agenda, our exploratory investigation revealed surprising groupings of countries that confounded expectations. Sweden and Finland, alongside Spain, Portugal and Italy for example were all found to be relatively poor performers in this EGD. Existing literature points to the markedly slow uptake of near zero energy buildings as a priority issue within southern Europe (Wang et al., 2017; Picard et al., 2020). We refute this conclusion. Policy action is required in and beyond southern Europe. The lack of correlation between the EPSR measures and this EGD mean that any firm conclusion towards pursuing a dual rights-buildings approach would be misleading. Further research is recommended. As this is a less well established EGD and policy area, we recognise that our findings are only indicative at this the stage.

5.2.5 EGD 5: Measures on social protection and inclusion needed for smarter mobility?

Policy actions in this field of sustainable and smart mobility should target an expansion of some well- established successes in only a few countries, in line with existing research (Horta, 2020; Schwanen, 2021). There is a notable clustering of high achievers in both social rights scores and across the three individual indicators of freight transport, passenger transport and zero emission vehicles. A combination of some Baltic states rising quickly and stable industry leaders such as Denmark offers a foundation to build policy actions upon. Like EGD 3, sharing best practice is certainly an option for expanding their success. Our data points to the growing urgency of ensuring that this success is maintained. The lack of correlation between social protection and inclusion measures of the EPSR and the performance in this EGD action area provides some initial indications that the connection between social justice measures and EGD 5 may be weaker than what it first appears. We of course do not conclude that social protection and inclusion measures within the sustainable mobility sector is lacking from this data. Our focus at this point is to rather point towards a trend of disconnection between sustainable mobility and social protection indicators for the best performing states. We would therefore

suggest that expanding the success of the few high performing nations with an increased focus on social protection and inclusion policies would be advantageous as a starting point.

5.2.6 EGD 6: Farm to fork should be more than empowering citizens

The farm to fork EGD strategy has a broad remit including food loss and waste prevention, sustainable food production and consumption, and food processing and distribution. We encourage the further development of these themes which have become dominated by organic farming and consumer rights in its early years. We support the Commission's efforts to avoid a narrowing of these action areas to these issues. Farm to fork in its very essence means analysing the broadest remit possible around making agriculture sustainable. Our leading recommendation for this EGD is to systematically increase the agendas involved in exploring this theme. For this report, and due to the limitations of existing data, we added to organic farming the broader issue of food insecurity among the adult population, government expenditure on agriculture, large-scale food producers and the productivity of small-scale food producers. In doing so, farm to fork becomes an action area that is relevant to more member states. Our initial observation on existing data also raises the prospect that the connection between social justice arguments and farm to fork remains implicit at best, with some interesting emerging groupings of member states. Its 2022 published (on the farm to fork EGD website) timeline shows a narrow view of justice as being mainly about empowering citizens. There is much work to do if farm to fork is to be understood comprehensively as a key promoter of social justice values, and if positive impact of these values on sustainable agricultural outputs, as attested in Swedish practitioner perspectives for example (Eliasson et al., 2022) is to be recognised. The recent surge in better defining farm to fork should broaden its remit through integrating a wider social justice goal in its timeline of key actions, beyond empowering the citizen.

5.2.7 EGD 7: More radical thinking needed in biodiversity and ecosystems management

The structural trends in biodiversity and ecosystems management need urgent attention from European policymakers. It is clear from our data that the best performing nations are almost all exclusively smaller or less wealthy nations. The high performance from most eastern and central European states in relative terms reflect some beneficial policy practices, but more uncomfortably structural observations of areas that are yet to be developed. This is both acute in marine and terrestrial protected areas. With current trends, we conclude that there is an inbuilt logic to current practices that will lead to further European wide degradation. All the EGD areas considered, this appears as the least well performing. The complete disconnect with a broader social justice commitment and positive performance in this EGD action area is also worthy of note. As more radical options towards better biodiversity and ecosystems management are considered, we recommend that social justice is built in, beyond simply how such areas are managed. We would encourage greater reflection on, for example, working conditions and the shifting labour market, as supported in a relevant commentary piece (Mubareka et al., 2022). Existing research (Cortina-Segarra et al., 2021) in this area tends to see social justice as a matter of including affected stakeholders and their views. A wider viewpoint on this would be beneficial if radical approaches to such management processes are to be optimally developed and enacted. Sectoral analyses are not our focus in this report, and more detailed reflection and analysis is needed on these points.

5.2.8 EGD 8: Safe environments could benefit from a more regional approach

Environmental safety is frequently understood within the prism of risk and protection, without the explicit consideration of its connection with social justice (Rodríguez-Espinosa et al., 2021). We do not claim to have investigated the statistical significance of this relationship. But rather, our analysis would suggest that there is a geographical observed correlation with those nations that perform well on the EPSR measures and those that have performed best during the study period on maintaining zero pollution and toxic free environments. Due to data availability, the authors recognise the limited scope offered by the two existing indicators that were available on national expenditure on environmental protection and years lost due to PM 2.5 exposure. Policy actions in this field should nevertheless be targeted towards geographical regions such as Eastern Europe and the southern Baltic states. A regional approach to building a culture of safe environments may be advantageous. The strong correlation with social justice performance would also suggest that connecting such a culture to one that promotes the broader social justice remit could also help to achieve better outcomes. We conclude these recommendations also with an indication that further research is needed to categorically prove such a connection.

5.3 Further applications and future development

This report aimed to explore the potential for developing a quantitative model that could be the basis for understanding social justice outcomes and processes within the EGD framework. The EPSR key indicators offered an initial step at proving this concept. The research in this study is based on secondary data from a historical perspective. Future research should develop a more tailored just transition model for real- time data analysis. This may involve existing commercial data or new data collected at a member state level. If possible, the resulting analysis should be made public. Real time data analysis, complemented with historical analysis, would allow for civil society and the public to hold policymakers to account on their actions on just transition We briefly detail each in turn and welcome further discussion from any interested parties.

5.3.1 Open access data-driven policy recommendations

Open access data is a rich and valuable resource when handled correctly but is currently underutilised. Many commercial companies repackage open access data and charge for access, marketing it towards researchers and students under the guise of something unique. We wish to instead encourage the use of open access data from source, to improve the robustness of empirical research and, ultimately, the quality of policy recommendations. We have generated unique data-derived observations, which offered insight into the eight action areas of the EGD. This in turn allowed us to develop robust, relevant and highly reliable recommendations for improving policy in each of the areas in line with social justice principles.

Future work in this area should seek to build further cross-national sources of data in both the action areas outlined in each EGD as well as the EPSR key indicators or alternative social justice indicators. The development of new datasets is crucial for the further elaboration of this model. The impact of recent shocks and crises, for example, such as the Covid-19 pandemic, climatic events and the war in Ukraine will need to be incorporated in future analyses. Existing data sources could be repurposed to build relevant indicators for both the EGD and social justice. Ideally, the systematic collection of national level data should be better financed with European assistance. We encourage any data sources that are developed to be open access in nature. The public facing content of these topics mean that easily accessible data

is not only important for researchers but also concerned citizens.

5.3.2 Development of a Just Transition model through real-time data

We see this project as a first opportunity to develop a new model resulting from the work completed. This was an opportunity to identify the key characteristics and the potential of what we are calling, at this early stage, the 'Just Transition' model. We see this as an approach to just transition where existing data-driven initiatives on social justice are interwoven into core multinational or national strategies, thereby leading to more robust social justice concerns being considered. We acknowledge and will promote our collaboration with SOLIDAR in subsequent publications using this method, as well as look for more concrete opportunities to collaborate in funded research. We see this as the beginning of a collaboration rather than a limited package of developing this publication only. We therefore call on any other interested parties to get in touch to support or be involved in developing such a model.

5.3.3 Future open access visualisations

The authors will utilise visual analytics platforms to create visualisations that have been generated for the report and more, including maps, scatterplots and other visualisation formats. Going forward, we propose creating and publishing interactive visualisations of this quantitative EDG/EPSR themes analysis using public hosting services. The public would be able to access the interactive visualisation and focus on, for example, a particular member state or indicator of interest. This would be a valuable method of knowledge exchange and increasing accessibility to data. This would of course be additional work to that proposed here. We would be willing to explore such applications with potential funders.

References

Abraham, J. (2017) *'Just Transitions for the Miners: Labor Environmentalism in the Ruhr and Appalachian Coalfields'*, New Political Science, 39(2), pp. 218–231.

Aggestam, F. and Giurca, A. (2021) *'The art of the "green" deal: Policy pathways for the EU Forest Strategy'*, Forest Policy and Economics, 128, pp. 12–24.

Barbieri, P. and Cutuli, G. (2016) *'Employment protection legislation, labour market dualism, and inequality in Europe'*, European Sociological Review, 32(4), pp. 501–516.

Bauknecht, D., Andersen, A.D. and Dunne, K.T. (2020) *'Challenges for electricity network governance in whole system change: Insights from energy transition in Norway'*, Environmental Innovation and Societal Transitions, 37, pp. 318–331.

Bongardt, A. and Torres, F. (2022) *'The European Green Deal: More than an Exit Strategy to the Pandemic Crisis, a Building Block of a Sustainable European Economic Model*'*, JCMS: Journal of Common Market Studies, 60(1), pp. 170–185.

Bouzarovski, S., Thomson, H. and Cornelis, M. (2021) *'Confronting Energy Poverty in Europe: A Research and Policy Agenda'*, Energies, 14(4), p. 858. Available at:

Carella, B. and Graziano, P. (2022) 'Back to the future in EU social policy? Endogenous critical junctures and the case of the European pillar of social rights', JCMS: Journal of Common Market Studies, 60(2), pp. 374–390.

Castán Broto, V. et al. (2018) *'Energy justice and sustainability transitions in Mozambique'*, Applied Energy, 228, pp. 645–655.

Cortina-Segarra, J. et al. (2021) *'Barriers to ecological restoration in Europe: expert perspectives'*, Restoration Ecology, 29(4), p. e13346.

Curley, A. (2018) *'A failed green future: Navajo green jobs and energy "transition" in the Navajo Nation'*, Geoforum, 88, pp. 57–65.

Dunlap, A. and Laratte, L. (2022) *'European Green Deal necropolitics: Exploring 'green' energy transition, degrowth & infrastructural colonization'*, Political Geography, 97, pp. 32–47.

EC (2017) *The European Pillar of Social Rights.* Available at: https://ec.europa.eu/info/sites/default/files/social-summit-european-pillar-social-rights- booklet_en.pdf.

EC (2019) *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of Regions: The European Green Deal.* COM(2019) 640 final. The European Commission. Available at: https://eur- lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:640:FIN.

EC (2021) *The European Pillar of Social Rights Action Plan.* Available at: https://ec.europa.eu/info/sites/default/files/social-summit-european-pillar-social-rights- booklet_en.pdf.

Eckert, E. and Kovalevska, O. (2021) *'Sustainability in the European Union: analyzing the discourse of the European green deal',* Journal of Risk and Financial Management, 14(2), pp. 80–92.

Eckert, S. (2021) *'The European Green Deal and the EU's Regulatory Power in Times of Crisis'*, JCMS: Journal of Common Market Studies, 59, pp. 81–91.

Eliasson, K. et al. (2022) *'Transformations towards sustainable food systems: contrasting Swedish practitioner perspectives with the European Commission's Farm to Fork Strategy'*, Sustainability Science [Preprint]. Available at: https://doi.org/10.1007/s11625-022-01174-3.

European Commission (2021) *The European pillar of social rights action plan.* LU: Publications Office. Available at: https://data.europa.eu/doi/10.2767/111056 (Accessed: 13 April 2022).

Farrell, C. (2012) *'A just transition: lessons learned from the environmental justice movement'*, Duke Forum for Law & Social Change (DFLSC), 4, pp. 45–63.

Feffer, J. (2021) *'European Green Deal: Step Forward, Backward, or Sideways?'*, Indigenous Policy Journal, 32(2), pp. 1–12.

Fleming, R.C. and Mauger, R. (2021) *'Green and just? An update on the "European Green Deal"'*, Journal for European Environmental & Planning Law, 18(1), pp. 164–180.

FoE (2017) *Just Transition: Is a just transition to a low-carbon economy possible within safe global carbon limits?* London: Friends of the Earth. Available at: https://friendsoftheearth.uk/sites/default/files/downloads/just_transition.pdf.

Fox-Hodess, K. (2019) *'Worker power, trade union strategy, and international connections: dockworker unionism in Colombia and Chile'*, Latin American Politics and Society, 61(3), pp. 29–54.

Grant, R. et al. (2021) *'An Ecohealth approach to energy justice: Evidence from Malawi's energy transition from biomass to electrification'*, Energy Research & Social Science, 75, pp. 101–121.

Härri, A., Levänen, J. and Koistinen, K. (2020) *'Marginalized small-scale farmers as actors in just circular-economy transitions: Exploring opportunities to circulate crop residue as raw material in India'*, Sustainability (Switzerland), 12(24), pp. 1–18.

Heffron, R.J. and McCauley, D. (2022) *'The "just transition" threat to our Energy and Climate 2030 targets'*, Energy Policy, 165, pp.112-120

Hendrickx, F. (2017) *'The European pillar of social rights: Interesting times ahead'*, European Labour Law Journal, 8(3), pp. 191–192.

Horta, A. (2020) *'Automobility and oil vulnerability unfairness as critical to energy transitions'*, Nature and Culture, 15(2), pp. 134–145.

Kenfack, C.E. (2019) *'Just transition at the intersection of labour and climate justice movements: Lessons from the Portuguese Climate Jobs Campaign'*, Global Labour Journal, 10(3), pp. 224–239.

Kraipornsak, P. (2018) *'Good governance and economic growth: An investigation of Thailand and selected Asian countries'*, Eurasian Journal of Economics and Finance, 6(1), pp. 93–106.

Krämer, L. (2020) *'Planning for climate and the environment: the EU green deal'*, Journal for European Environmental & Planning Law, 17(3), pp. 267–306.

McCauley, D. et al. (2019) *'Energy justice in the transition to low carbon systems: Exploring key themes in interdisciplinary research'*, Applied Energy, 229, pp. 233–270.

McCauley, D. et al. (2022) *'Which states will lead a just transition for the Arctic? A DeePeR analysis of global data on Arctic states and formal observer states'*, Global Environmental Change, 73, p. 102480.

McCauley, D. and Heffron, R. (2018) *'Just Transition: Integrating climate, energy and environmental justice'*, Energy Policy, 119, pp. 1–7.

Mengova, E. (2019) *'What Determines Energy Production from Renewable Sources?'*, Journal of Strategic Innovation and Sustainability, 14(4), pp. 83–100.

Mubareka, S. et al. (2022) *'The role of scientists in EU forest-related policy in the Green Deal era'*, One Earth, 5(1), pp. 10–13.

Mullen, C. and Marsden, G. (2016) *'Mobility justice in low carbon energy transitions'*, Energy Research & Social Science, 18, pp. 109–119.

Pianta, M. and Lucchese, M. (2020) *'Rethinking the European Green Deal: An industrial policy for a just transition in Europe'*, Review of Radical Political Economics, 52(4), pp. 633–641.

Picard, T. et al. (2020) *'Robustness of energy performance of Zero-Net-Energy (ZNE) homes'*, Energy and Buildings, 224, p. 110251.

Rodríguez-Espinosa, T. et al. (2021) *'Urban areas, human health and technosols for the green deal'*, Environmental Geochemistry and Health, 43(12), pp. 5065–5086.

Routledge, P., Cumbers, A. and Derickson, K.D. (2018) *'States of just transition: Realising climate justice through and against the state'*, Geoforum, 88, pp. 78–86.

Samper, J.A., Schockling, A. and Islar, M. (2021) *'Climate politics in green deals: Exposing the political frontiers of the European Green Deal'*, Politics and Governance, 9(2), pp. 8–16.

Schwanen, T. (2021) *'Achieving just transitions to low-carbon urban mobility'*, Nature Energy, 6(7), pp. 685–687.

Skjærseth, J.B. (2021) *'Towards a European Green Deal: The evolution of EU climate and energy policy mixes'*, International Environmental Agreements: Politics, Law and Economics, 21(1), pp. 25– 41.

Sulich, A. and Sołoducho-Pelc, L. (2021) *'The circular economy and the Green Jobs creation'*, Environmental Science and Pollution Research, pp. 1–17.

Thomas, A. (2021) *'Framing the just transition: How international trade unions engage with UN climate negotiations'*, Global Environmental Change, 70, p. 102347.

Vesan, P. and Corti, F. (2019) *'New tensions over social Europe? The European Pillar of Social Rights and the debate within the European Parliament'*, JCMS: Journal of Common Market Studies, 57(5), pp. 977–994.

Wang, N. et al. (2017) *'Ten questions concerning future buildings beyond zero energy and carbon neutrality'*, Building and Environment, 119, pp. 169–182.

Weber, G. and Cabras, I. (2021) *'Environmental justice and just transition in the EU's sustainability policies in third countries: The case of Colombia'*, The International Spectator, 56(3), pp. 119–137.

Williams, S. and Doyon, A. (2019) *'Justice in energy transitions'*, Environmental Innovation and Societal Transitions, 31, pp. 144–153.

SOLIDAR is a European and worldwide network of Civil Society Organisations (CSOs) working to advance social justice through a just transition in Europe and worldwide. With over 50 member organisations based in 26 countries (19 of which are EU countries), member organisations are national CSOs in Europe, as well as some non-EU and EU-wide organisations, working in one or more of our fields of activity.

The European Green Deal (EGD), the EU's strategy to reach climate neutrality by 2050, is meant to be guided by the principles and rights of the European Pillar of Social Rights (EPSR). However, the social dimension of the European Green Deal is not sufficiently taken into account nor developed. How can we ensure better integration between the EGD and the EPSR?

SOLIDAR and the Erasmus University Rotterdam are happy to contribute to the debate on bringing the social, climate and environmental agendas closer together with a publication on Just Transition covering the 8 key areas of the EGD and the three Chapters of the EPSR. The publication is co-authored by Darren McCauley and Kerry Andrea Pettigrew.

solidar

REALISING
A SOCIAL EUROPE
FOR ALL WITH ALL

Responsible editor:
Mikael Leyi

Authors:
Darren McCauley and Kerry Andrea Pettigrew

Coordination of publication:
Andrea Casamenti, Martina Corti and Carlos Roldán Mejías

Copy Editing:
Sara Hammerton

Graphic Design:
Dagmar Bleyová

SOLIDAR
50 Avenue Des Arts.,
Box 5, 2nd floor.
B1000 - Brussels
Belgium

www.solidar.org

Co-funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the granting authority can be held responsible for them.