



Analysis

Renewable Energy as a Luxury? A Qualitative Comparative Analysis of the Role of the Economy in the EU's Renewable Energy Transitions During the 'Double Crisis'



Jan-Justus Andreas*, Charlotte Burns, Julia Touza

University of York, Environment Department, Wentworth Way, YO10 5NG York, United Kingdom

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ABSTRACT

The European Union (EU) faces a double crisis: both economic and environmental, which has brought into stark relief the question of whether climate change mitigation and economic growth are mutually exclusive. Is saving the environment a 'luxury' reserved for wealthy countries, with less affluent countries being too poor to be green? We seek to address this important and timely question using fuzzy-set Qualitative Comparative Analysis (fsQCA) to analyse the causal relationship between economic growth and stability, and the expansion of renewable electricity shares among the European Union's (EU) 28 member states during the recent economic recession (2008–2013). Our paper, analyses the recent economic and financial crisis and its effects on sustainability transitions, and establishes a new indicator for progress in renewable electricity transitions in the context of Europe's 2020 targets. It therefore extends the 'sustainability as a luxury' debate to include renewable energy. The analysis reveals an ambivalent picture of the role of wealth in renewable energy transitions (RET) in Europe. Indeed, driven by the EU's common renewable energy targets, the findings suggest that RETs are promoted both because, and in spite of the means.

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1. Introduction

This paper analyses *whether the economic and financial struggles of some EU member states have resulted in slower renewable energy transitions*. More specifically, we investigate whether the economic crisis has led to a division in the progress in expanding renewable electricity generation between economically stable and affluent EU member states and the weaker peripheries.

Following the financial crash of 2007/8, the European Union's (EU) economy plunged into a recession that officially ended in 2013 (Eurostat, 2017).¹ Rising debt levels particularly in Eurozone states led to the widespread introduction of austerity measures. The EU further introduced its 2020 Strategy in 2010 that set binding emission, renewable and efficiency targets for governments on a path towards greener growth. The 2020 strategy thereby reflected the emerging narrative of a 'double crisis' that linked the economic and environmental crises (Bina, 2013; Bina and La Camera, 2011; Edenhofer and Stern, 2009;

Everett et al., 2010; Foxon, 2013; Leichenko et al., 2010; Read, 2009; Reinhart and Rogoff, 2009; Tienhaara, 2010; UNEP, 2009). Measures to achieve sustainable development are, however, often perceived as costly and a potential drag on the economy (Skovgaard, 2014). A key question in this debate therefore concerns whether the protection of the environment has become a luxury. Crucially, can poorer countries afford to invest in renewable transitions when times are tough?

Drawing upon the literature on the relationship between wealth and sustainability we develop the following two hypotheses:

- (i) Less wealthy EU countries have made poorer progress towards meeting their 2020 renewable electricity targets.
- (ii) Wealthier EU countries have better progress towards meeting their 2020 renewable electricity targets.

These hypotheses are assessed through a fuzzy-Set Qualitative Comparative Analysis (fsQCA) approach as developed by Ragin (2008, 2000) that determines causal relationships between an outcome and multiple qualitative and quantitative conditions. We seek to identify which economic conditions are minimally sufficient and minimally necessary for strong progress in the expansion of renewable electricity shares across EU member states. Progress in renewable electricity shares constitutes the outcome for our analysis and is represented through an innovative

* Corresponding author.

E-mail addresses: mail@jandreas.de (J.-J. Andreas), charlotte.burns@york.ac.uk (C. Burns), julia.touza@york.ac.uk (J. Touza).

¹ A recession refers to two consecutive quarters of no or negative growth, with the recession for the EU based on its average growth rates of all 28 member states.

measure devised by the authors: the Progress of Renewable Electricity Transitions (POET) indicator. The timeframe of the analysis, the economic recession in the EU (2008–2013), constitutes an important moment. Crises represent severe disruptions that test existing institutions and norms, providing opportunity for change, but also catalysing and unveiling underlying trends, dynamics and behaviours (Claessens and Kose, 2013; Habermas, 1975). We chose the focus on renewable electricity due to the decisive role played by the electricity sector in global environmental degradation and pollution (Heede, 2013).

Our paper enriches the existing debate in three main ways. Empirically, it provides a timely analysis set within the context of the recent economic and financial crisis and thereby contributes to the growing literature on how the crisis is affecting European climate and energy policies (Slominski, 2016). The focus on renewable electricity further provides a valuable new facet within the wider debate on ‘sustainability as a luxury’, due to energy’s position at the critical junction of the economy (as its fundamental fuel) and the environment (as its primary polluter). We further provide a new way of conceptualising progress in renewable energy transitions (RETs) within the context of Europe’s 2020 targets by establishing the novel POET indicator. Finally, methodologically, the application of QCA adds to a small but growing number of publications in the field of energy policy and environmental economics (Crawford, 2012; Muench, 2015; Wright and Schaffer Boudet, 2012; Yamasaki, 2009). This article represents the first application of QCA for testing a specific hypothesis surrounding the effect of economic conditions on renewable energy policies in times of economic crisis. To the best of our knowledge, ours is also the first study that explicitly addresses the issue of model ambiguities in QCA, a problem that has only recently been brought into focus by Thiem (2014a) and Baumgartner and Thiem (2015).

Below we briefly review the debates on the role of wealth in sustainability transitions; before providing a detailed outline of the use of QCA; in section four we present the results of the analysis before discussing them in section five. Section six provides some final remarks and conclusions. The analysis suggests an ambivalent relationship between wealth and renewable energy transitions in Europe: no significant gap emerged between wealthy and less wealthy EU countries’ renewable energy transitions. As both indicators of wealthy and less wealthy European economies are identified as causes for POET, the overall findings suggest that RETs are promoted both because, and in spite of the means. As such, the role of differing national, political contexts and the EU’s common renewable energy targets as a fundamental driver of RETs should not be underestimated.

2. Renewable Energy: A Question of Means?

Debates about the relationship between economic development and environmental protection are long-standing. In the EU context, analysts have sought to determine if there is a ‘(rich) north - (poor) south divide’ in environmental policy (Börzel, 2002, 2000; Lekakis, 2000). Martinez-Alier (1994) suggests that wealthier states are more sustainable, for three principal reasons. More extensive sustainability measures in wealthier states may be (i) based on the need to counteract growing resource dependence associated with increasing wealth, (ii) an attempt to benefit from the positive economic effects of sustainability, and (iii) due to the greater availability of means to invest in the environment (Martinez-Alier, 1994) – a prominent argument also related to the intra-European ‘north-south divide’ (Börzel, 2002, 2000). These analyses suggest three general motivators for government action, namely (i) the acknowledgment of a need for greater sustainability that leads to the willingness to act, (ii) a benefit from such action (motivation), and (iii) the means to act.

We can see willingness and motivation directly translated in the EU’s 2020 Strategy that seeks to counteract anthropogenic climate change (willingness) and claims benefits of green and sustainable growth through innovation and efficiency (motivation). European

countries are further ‘motivated’ to act by the threat of penalties if targets are missed (European Commission, 2013). It is important to note that some countries that have historically been more supportive of sustainability measures, or in this case renewable energy, such as Denmark, Germany, the Netherlands and Sweden, might have a greater willingness and motivation than other EU member states (Cohen, 2000; Dryzek, 2005; Requier-Desjardins et al., 1999). Nevertheless, with the basic targets set and National Renewable Energy Action Plans (NREAP) created by individual governments, a common, basic level of willingness and motivation can be considered a given, however, significant differences in the means available to facilitate greater sustainability remain. Therefore our question is how do these differences in the means (wealth) affect member states’ RETs?

The existence of the double crisis and the two binding targets in the form of austerity and the 2020 strategy represent a significant challenge to policy-makers. The propagated fiscal consolidation is based on the belief that unsustainable government debt levels undermine the economic and financial stability of the Union (Checherita and Rother, 2010). Austerity measures thereby represent the enforcement of the European Monetary Union’s (EMU) convergence criteria that require state government deficits to remain below 3% of Gross Domestic Product (GDP) and government debt below 60% of GDP. At the same time, the 2020 strategy seeks to address issues of environmental degradation, pollution and anthropogenic climate change through setting binding targets that seek a 20 percent reduction of greenhouse gas (GHG) emissions (based on 1990 levels), a 20 percent increase in renewable energy and a 20 percent improved energy efficiency (European Commission, 2010). For the renewable sector these targets are based on the 2009 Renewable Energy Directive that followed the 2008 climate change and energy package.²

While RETs are an important tool in mitigating the effects of anthropogenic climate change, considering the polluting effects of conventional energy sources (Heede, 2013), RETs are neither the cheapest nor the most effective way to do so (Apergis and Payne, 2012; Darwall, 2015). Replacing existing conventional power plants with renewables requires government support to create a favourable policy and investment environment that could be undermined through extensive fiscal consolidation programmes (Alesina and Ardagna, 2012; Busch et al., 2013). Although RETs do not necessarily impose an additional burden on the state budget, as many renewable policies transfer costs onto end-consumers, they are seen to increase electricity prices (Klessmann et al., 2008; Sáenz de Miera et al., 2008; Sensfuß et al., 2008). The installation of renewables has also been associated with a decrease in a country’s wealth in the form of GDP per capita (Silva et al., 2012). Renewable electricity sources are therefore considered expensive *vis-à-vis* fossil fuels if the further societal and environmental benefits from renewables are not internalised. Hence, the economic effects of RETs fail to align with, and may even seem to directly contradict, the need to overcome the economic recession.

Sustainability transitions have therefore often been considered the preserve of wealthier, developed countries that can afford to carry the financial and economic burden of being green. Yet the literature assessing environmental quality in terms of being either a ‘normal’ or a ‘luxury’ economic good shows an ambivalent picture: it has been identified both as a normal (Aldy et al., 1999; Kristrom and Riera, 1996;

² The Commission sought to increase these targets during the crisis (Skovgaard, 2014). In October 2014 the European Council introduced the framework for climate and energy that set a target of 27% renewables in final energy consumption by 2030. A proposal by the Commission from November 2016 calls for member states to combine their actions to ensure the meeting of these targets and envisaged a greater coordinating role for the EU and was aimed at complementing the Energy Union Governance (European Commission, 2016b). The Energy Union itself was identified as a priority project by the Juncker Commission and seeks to establish a fully integrated European energy market to improve energy security and efficiency, decrease prices and carbon emissions, and improve competitiveness and research and innovation (European Commission, 2017b).

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