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## **Abstract**

*The on-going European economic crisis provides a focus for academics wishing to understand the relationship between major exogenous shocks and changes to environmental protection. Yet, measuring change, particularly to policies, is notoriously fraught with difficulties. This research note explores the conceptual and methodological challenges associated with capturing change in response to the economic crisis in Europe, specifically focussing upon the environment. The environment is typically touted as a European Union success story, but there is good reason to suspect that this policy sector may have been – and continues to be – negatively affected by the economic downturn. We suggest a toolkit of measures that can capture changes to this sector, and which may also be employed by researchers of other policy sectors.*

Keywords: European Union, economic crisis, environmental policy.

## **Introduction**

The global economic and Eurozone crises that have afflicted European economies since 2008 have caused radical changes to the economic strategies of many states (Blyth, 2013; Hodson & Quaglia, 2009; Magalhães, 2014; Russel & Benson, 2014), with concomitant effects upon a range of policy sectors. Yet, determining the nature of those impacts is notoriously difficult and there is a vast literature that seeks to address how and why policy can change in response to exogenous shocks (e.g. Baumgartner & Jones, 1993; Garud *et al.*, 2010; Howlett & Cashore, 2009; Schmidt, 2011). This research note seeks to engage with that literature by focussing upon one specific, but important, area– changes to European Union (EU) environmental protection. By surveying existing attempts to determine environmental change, we argue that the use of a combination of measures can mitigate the individual weaknesses of each approach. Thus, we contribute a ‘toolkit’, which,

when employed in its entirety, may provide a nuanced and comprehensive understanding of environmental changes following exogenous shocks.

The reasons for this focus on EU environmental protection are threefold. First, there is emerging evidence that EU environmental ambition has been negatively affected by the economic downturn. The new European Commission – headed by Jean-Claude Juncker and which commenced in November 2014 – appears to have accelerated this change in focus. For example, early analyses highlight a reorganisation of environmental portfolios within the Commission that prioritises energy security over climate change, and an apparent mandate for deregulation following a review of all uncompleted major initiatives (Čavoški, 2015; Gravey, 2014). In line with these changes, in December 2014, the Commission outlined plans to postpone its flagship Circular Economy package and weaken proposed air pollution rules (European Commission, 2015a). Any reduction in ambition would be significant for our wider understanding of the nature and trajectory of EU environmental policy, as there is a standard assumption in the field that this sector has been expansionist in nature (Weale, 1999). To date, however, there has been little attempt to assess the impacts of the crisis on the environment (for early exceptions, see Russel & Benson, 2014; Skovgaard, 2014). Second, the EU had sought to define its international identity by developing ambitious environmental policies and by taking a lead at international environmental negotiations (Kilian & Elgström, 2010; Parker & Karlsson, 2010; van Schaik & Schunz, 2012; Wurzel & Connelly, 2011). Hence, any diminution in ambition will have attendant consequences for the wider international environmental policy community and the EU's self-identification as a global environmental leader. Third, there is a range of pressing environmental issues that require long-term policy solutions (particularly climate change) and it is therefore important to understand how and why economic shocks impact this sector in order to protect more effectively against such shocks in the future.

Below, we review existing attempts in the literature to capture changes in the environmental sector resulting from economic and financial crises, in order to develop a toolkit that may more comprehensively measure changes to the environment. Existing research has generally employed three main measures for analysing change: environmental policy budgets; environmental policy outputs (i.e. the number and strength of policies

brought forward); and environmental outcomes (i.e. environmental quality indicators). We review the strengths and weaknesses of each of these approaches and conclude that each possesses flaws that render it inadequate on its own to capture the multi-faceted effects of exogenous shocks to the environmental protection sector. Moreover, we suggest that the rather atomised approach that has evolved within the literature means that it is difficult to develop coherent theoretical expectations about the relationship between an exogenous economic shock and EU-level environmental protection. Consequently, we suggest a combined approach that draws upon the strengths of each measure, allowing the development of a clear dependent variable – namely, changes to environmental protection at the EU-level – and a methodological toolkit that can capture and measure this dependent variable. In addition, we propose a number of hypotheses, which are derived from the existing literature and structured around the three approaches comprising the toolkit. We suggest that the application of this toolkit, alongside the associated hypotheses, will enable a more thorough understanding of how and why shocks can impact upon EU environmental protection.

### **Methods for measuring environmental change**

If we are seeking to determine the extent to which environmental protection has changed in response to an economic shock, one obvious indicator is the amount of resources dedicated to a particular area. Equally, a key indicator of policy change is the number and content of policies brought forward. A shift in wider political priorities as a consequence of economic shocks that, for example, result in the privileging of economic growth over environmental policy, may be expected to result in fewer or weaker environmental policies being brought forward. It also makes sense to analyse whether environmental outcomes – resulting from policy interventions or not – show evidence of change. The three principal measures noted above may be said to fall into three broad approaches that can be applied to the environmental policy sector. Changes to budgetary allocations may be understood as the *means* deployed to pursue policy objectives. We can also measure changes in the environmental policy *outputs* produced by actors, which may be captured by analyses of policy ‘density’ and ‘intensity’ (Bauer & Knill, 2012; Jordan *et al.*, 2013). Finally, environmental quality indicators, such as

measurements of pollution levels, are the *outcomes*, which may or may not result directly from policy efforts.<sup>1</sup> Below, we review each of these three approaches in turn, finding that despite individual weaknesses, collectively, they provide a holistic toolkit for measuring change following an exogenous shock.

### *Means*

Using changes in budgetary allocations to determine policy change is a well-established method within public policy (e.g. Baumgartner *et al.*, 2006; Citi, 2013). Increases in spending or sharp downturns can indicate punctuated equilibrium (Baumgartner and Jones, 1993). Certainly at the EU-level, budgetary allocations to national environmental projects have been central drivers of environmental policy developments in poorer states and any cuts to such budgets are likely to have a detrimental impact. Interestingly, when the economic crisis initially broke, there was a general call globally for more green investment, with the pursuit of an environmental transition to a low carbon society identified as a potential vehicle for growth (see *inter alia* Obama, 2009; UNEP, 2009a; 2009b). For example, the Barroso Commission made the goal of a sustainable EU a central plank of its recovery plan (European Commission, 2010).

However, the dominant policy response within Europe to the global economic and Eurozone crises has been the pursuit of austerity (Gravey, 2014; Lekakis & Kousis, 2013; Leschke *et al.*, 2015; Zezza, 2012). Whilst this approach has been pursued in a heterogeneous manner, a general impact has been cuts to spending in specific policy areas, even if overall spending has increased (Blyth, 2013; Hodson & Quaglia, 2009; Magalhães, 2014; Russel & Benson, 2014). For example, the 2014-2020 EU budget was the first in the EU's history to have been reduced, albeit one in which climate change spending was protected (European Commission, 2013). Lekakis and Kousis (2013) use budgetary changes to highlight the potential impact of the economic crisis on the environment. They review green investments between 2005 and 2011, underlining the importance of green stimulus measures to the Greek economy, and the potential economic damage caused

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<sup>1</sup> It should be noted that Easton (1965; 351-352) and Underdal (2002; 5-6) use the word 'impact' to refer to changes in the biophysical environment and 'outcome' to denote changes in human behaviour. However, we find that such terminology confuses efforts to ascertain the overall impact of crises, which we argue comprises changes to the means, outputs and outcomes of environmental protection.

by reducing public investments in these areas. Russel and Benson (2014) analyse green budgeting practices in the USA and UK, comparing the period from 1940 to 2009 against policy decisions made after 2009. However, they concentrate upon explaining the drivers of spending changes during periods of austerity, rather than measuring how austerity influences budgets. Thus, whilst it seems highly likely that one impact of the economic crisis on the EU environmental sector is a reduction in spending under the auspices of austerity, there remains a significant gap in the existing literature regarding whether and how environmental budgets change, as a consequence of economic downturns.

For example, a key indicator of reduced government spending in the UK has been cuts to local authority spending (Butler & Jowit, 2014), with local government a key vehicle for implementing environmental policy. However, disentangling environmental spending from cognate areas is challenging, especially in the EU, where environmental budgets are mainstreamed across all areas, with only a small percentage of the budget dedicated to the EU's environmental LIFE+ programme (Withana *et al.*, 2014). Moreover, whilst the Commission can allocate funds to particular budget headings, expenditure is generally carried out at the member state level. Disentangling EU funds from particular budget headings as part of national funds becomes complex (Withana *et al.*, 2014), data may be patchy (e.g. see Soroka *et al.*, 2006), and determining what counts as 'environmental' requires careful consideration. Yet, even if large portions of the environmental budget are accorded to specific projects, such as the Common Agricultural Policy, a longitudinal study that tracks whether there are significant changes to the financial support given to these 'constants' can enable an insight into priority changes. As such, while careful and transparent coding decisions would be crucial, budgetary changes provide an effective indicator of the impact of crisis on the *means* of pursuing environmental protection.

### *Outputs*

A standard assumption in the literature on EU environmental policy is that the sector is ambitious and expansionist (Weale, 1999). Since the entry into force of the Single European Act in 1987, the environmental *acquis communautaire* has increased steadily, either in response to recently-identified threats, or as a means of increasing the ambition of existing policies. However, one standard response of executives seeking to cut

spending is to reduce the quantity and ambition of policy outputs, i.e. policy dismantling. Measuring policy change by reviewing the amount of new legislative outputs (policy density) and the content of these outputs (policy intensity) can capture such dismantling strategies (Bauer & Knill, 2012; Jordan *et al.*, 2013), and also act as a useful proxy for capturing the relative importance accorded to a policy on the wider political agenda. There appears to be some evidence of a move to roll back legislation at the EU-level as part of the Regulatory Fitness and Performance (REFIT) agenda which, with its focus upon ensuring the cost-effectiveness and efficiency of policy and its emphasis upon reducing regulatory burdens, raises the possibility of removing existing legislation (European Commission, 2015b). For instance, environmental policy has already been targeted under REFIT, as habitats and birds legislation are subject to a review (European Commission, 2015c). Analysing the amount of EU environmental legislation produced over time, therefore, provides a useful indicator of the developmental trajectory of the environmental *acquis* post-2008. However, as Grant and Kelly (2008, p. 306) argue, ‘simply counting laws without accounting for their content is likely to produce measurement error when attempting to measure policy production’. Thus, some kind of qualitative evaluation of policy content (intensity) is also required.

The concept of ‘policy intensity’ is complementary to policy density, and can be used to express the strictness of a given policy (Knill *et al.*, 2009). In other words, policy intensity conceptualizes the ‘ambition’ of piece of legislation. Jordan *et al.* (2005) note that by changing the instruments involved, policies may remain substantively the same in their goals and objectives despite appearing to be deregulated. Bauer and Knill (2012) expand the conceptualization of policy intensity further, by including the ‘scope’ of the policy intervention. Here, the scope generally changes in line with the number of cases or target groups addressed by a certain policy; for example, the number of factories emitting pollutants addressed by a particular environmental bill (Bauer and Knill, 2012, p. 34). Schaffrin *et al.* (2015) derive six forms of intensity by building on the taxonomy developed by Howlett and Cashore (2009). These six forms are the objectives, scope, integration, budget, implementation, and monitoring of a policy. In so doing, the authors attempt to establish a consistent means of comparing policy outputs, or ‘actions’, across different contexts. Policy intensity is therefore a useful companion to analyses of policy density as it provides additional and rich data

that can be used to determine broader legislative trends. For example, by using both policy density and intensity in combination, it may be possible to determine that a decline in the number of policies has occurred but that the scope and ambition of those policies has increased, or *vice versa*.

However, as with environmental budgets, these measures raise some methodological challenges. First, to evaluate the density and intensity of environmental policy requires a clear understanding of what counts as ‘environmental’. In their study of European Parliament amendments to EU environmental legislation, Burns and Carter (2010; also see Burns *et al.*, 2013) suggested that environmental policy could be selected by analysing those policies addressed by the European Parliament’s Environment Committee.<sup>2</sup> However, this approach potentially excludes agricultural and energy policy developments that have important environmental dimensions; a problem also faced when using the Commission’s own coding of policies on Prelex<sup>3</sup>, where policy areas are given a number code (‘environment’ is 13). As with the budgetary measures outlined above, a clear set of criteria for identifying policies for consideration is required that can be used by other scholars seeking to replicate results. A key drawback with the analysis of policy density is that a reduction in the number of new policies being produced may be explained by the presence of existing policy solutions. If an actor is already responding effectively to an environmental challenge then there is little need to develop new policies. In such a situation, we would expect to see a decline in policy outputs over time, but this reduction would not necessarily suggest a diminution in ambition. A further methodological challenge is how to account for the evolution of knowledge about environmental threats and solutions over time. For example, the severity of an environmental problem may be more acute than expected, requiring more ambitious policies. These issues weaken the analytical utility of the policy intensity and density indicators, yet they can be mitigated by taking into account the wider environmental and policy context within which legislation is proposed.

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<sup>2</sup> They explicitly excluded health and consumer protection legislation that falls within the committee’s brief from their dataset (See Burns and Carter, 2010; Burns *et al.*, 2013).

<sup>3</sup> <http://eur-lex.europa.eu/collection/legislative-procedures.html>



## *Outcomes*

Existing studies analysing environmental quality indicators (EQIs) in the immediate aftermath of economic downturns suggest that in the short-term, economic crises generally result in positive environmental impacts. Siddiqi (2000) examined changes in air and water pollution in Asia following the economic crisis of 1997, finding that the crisis resulted in short-term environmental benefits, due to contractions in manufacturing outputs. However, he also suggests that the crisis led many Asian countries to cut back their investment into environmental protection in the long-term. This finding suggests there are benefits to combining analyses of budgetary changes with those focussed upon impacts. Elliott (2011), in her examination of the impacts of the 1997 and 2008 financial crises on the environment in East Asia, finds their impacts to be ambiguous at best, but negative on the whole. Lekakis and Kousis (2013) also assess changes in air and water pollution, in order to analyse the impact of austerity policies on the environment in Greece, and note that levels of sulphur dioxide, carbon dioxide, phosphorus and nitrogen fell between 2007 and 2010, in line with reductions in economic productivity. However, like Siddiqi, they posit that these environmental gains may be short-term in nature, noting the creation of unexpected smog in Greek cities. For Peters *et al.* (2012), any global reduction in CO<sub>2</sub> emissions as a result of the financial crisis had ended a year after the crisis, as developing states rapidly increased their emissions again.

Measures that assess changes in environmental quality via emissions provide useful snapshots for understanding how financial and economic crises can affect the environment. However, it can be difficult to identify whether the obtained results represent short-term changes; once the economy improves and productivity increases, environmental degradation is likely to worsen again. Indeed, in the long-term, environmental degradation may be exacerbated by economic crises, as efforts to strengthen the economy dominate government policy objectives, to the cost of other policy areas (Tienhaara, 2010). Overlapping policy areas, such as agriculture or industrial policy, may, for example, receive a higher priority than the environment during times of crisis. Policies made in these areas may, in turn, harm the environment if pursued more aggressively with a view to securing growth. Thus, a longitudinal study comprising several decades may be more effective, in order to identify longer-term trends. Even with the benefit of a long-term analysis,

however, it is clear that there is a range of confounding factors that can have an impact upon environmental quality indicators, independent of economic growth. Thus, whilst EQIs can provide an interesting snapshot of potential environmental *outcomes*, their utility in this context is limited, and they certainly cannot be used in isolation.

### **Summary and future directions**

Three principal approaches have been identified from the literature for capturing environmental change in response to economic crises. These measures have been utilised in different ways and have emerged from a range of literatures, resulting in a patchwork of approaches to capture the impact of economic crises upon different aspects of environmental protection. Moreover, we have also highlighted a number of methodological challenges associated with employing each of these measures. In order to mitigate the weaknesses associated with each approach and in order to overcome the patchwork characteristic of work in this area to date, we argue that by using all three indicators together as a toolkit, a holistic analysis of the potential impacts of crisis upon the environment can be achieved. Such a toolkit may seem like an obvious step, but thus far, there have been no attempts to integrate these methods to achieve a multi-dimensional perspective of change. We propose that such a toolkit can complement and consolidate other methodological and theoretical frameworks that are employed in the field.

Having established a way of capturing the degree of change in the environmental policy sector through the analysis of means, outputs and outcomes, the next step is to gather and analyse data in order to contribute to the wider understanding of the relationship between exogenous shocks and environmental protection in the EU. This analysis will advance understandings of: i) the developmental trajectory of EU environmental policy and; ii) the resilience of this policy sector in the face of external change. The literatures we have reviewed not only propose a set of measures of environmental change, but, from them, it is also possible to formulate a range of hypotheses, to probe the dominant assumptions underpinning analyses of EU environmental protection. By drawing a set of hypotheses, we may establish the foundations for future research into the

impacts of exogenous shocks upon environmental policy. Moreover, these hypotheses may be adapted relatively straightforwardly to other policy sectors, such as healthcare, education or social policy.

The overarching finding that emerges from the existing literature is that the economic crisis is likely to have had a negative effect upon EU environmental policy. This finding points to a set of more detailed expectations relating to each of our indicators, that can be derived from the literature surveyed above.

### *Means*

*H1*: Budgetary allocations to the environment have declined post-2008.

### *Outputs*

*H2a*: There has been a reduction in the number of environmental policy proposals brought forward post-2008 compared to the preceding period.

*H2b*: There has been a reduction in the ambition of environmental policy proposals brought forward post-2008 compared to the preceding period.

### *Outcomes*

*H3a*: There was a temporary improvement in environmental quality indicators post-2008.

*H3b*: Any immediate gains were soon overridden by increases in pollution that resulted from economic activity.

## **Conclusion**

Whilst much work has been conducted on measuring the economic impacts of the financial and economic crises that have beset the European Union since 2008, the impact upon environmental protection has so far been neglected. This issue is of significant importance to scholars of European Studies, as the EU has staked much of its international reputation on its environmental credentials; the crisis and its potentially negative

impacts therefore hold the potential to shape the fabric of the EU's global identity. The identification and usage of methods for measuring changes to the environmental policy sector are crucial for understanding the extent to which environmental policy is 'future-proofed' against exogenous shocks. If environmental protection becomes static – or, more significantly, is rolled back – during times of economic strife, then environmental problems are unlikely to be addressed effectively. Indeed, exogenous shocks may even exacerbate environmental problems, as well as the associated policy solutions. Whilst each of the measures explored in this article provides useful indicators of how shocks may affect the environment, they each comprise individual weaknesses. In order to obtain a comprehensive understanding of the impact of the crisis, therefore, it is argued that the measures be employed in combination together as a toolkit. Now established, this toolkit can join other approaches that seek to determine the nature of change following exogenous shocks, and may also be of use to those researching other policy fields.

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