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Client-oriented evaluation of 'creative destruction' in policy mixes: Finnish policies on building energy efficiency transition

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ABSTRACT

This article connects the literatures of policy evaluation, policy mixes and sustainability transition. It utilises client-oriented evaluation to examine national policies in Finland from the perspective of low-carbon buildings transition. In Finland, energy efficiency has traditionally received less focus in energy and climate policy strategies compared to renewable energy. Since 2007, energy efficiency policies addressing buildings gained force. Sixteen new policy instruments were implemented during 2007–2014 and several revisions were made to the building code energy efficiency requirements. To what extent these changes contribute to 'creative destruction' in the policy domain is uncertain. Therefore, we conduct a client-oriented evaluation of the policy mix from the perspective of a boundary actor—integrated energy service companies—to analyse its potential for facilitating zero-carbon transition. The findings show a divergence of opinions regarding the policy mix's disruptive influence. Where potentially disruptive policy instruments can be found, their impact is reduced due to incoherence in policy implementation processes. The usability of client-oriented evaluation for policy mix analysis is found limited on its own but useful in complementing top-down policy evaluations. We also propose an additional function to the creative destruction policy mix: 'changes in organisational and institutional practices', linking to the coherence of policy mixes.

1. Introduction

The December 2015 Paris Agreement on Climate Change has placed greater political legitimacy on the need to curtail high carbon intensive practices than ever before. This urgent need to overturn current high carbon intensive practices requires processes of creative destruction (e.g. [1]) that go beyond the stimulation of innovations by destabilising regimes of carbon-intensive production and consumption. A crucial element to address this is the formation of policy mixes that address both the creation of innovations that reduce carbon emissions and involve measures to disrupt the status quo [1]. These kinds of policy mixes link to the idea of 'transformative' innovation policy [2] or economic policy [3] with implications on policy organisation, orientation and *evaluation*.

Recent literature on policy mixes has begun to partly move away from analysing narrow, specifically designed portfolios of policy goals and instruments towards a consideration of broader mixes of policies. Such broader mixes may exist across administrative domains and have negative or positive implications on transitioning towards low carbon and climate resilient futures. For example, Kivimaa and Virkamäki [4] showed how transport policy mixes are more focused on advancing vehicle and fuel technology and less comprehensive regarding demand reduction. Reichardt et al. [5] and Kern et al. [6] recently demonstrated that the temporal development of the policy mix also influences its effectiveness. Yet these studies do not analyse the mix from the perspective of destabilisation, argued as crucial by Kivimaa and Kern [1] and illustrated by an analysis of a mix of energy efficiency policy instruments in Finland and the UK. In an important contribution to the field, Rogge and Reichardt [7] have argued that a focus merely on goals and instruments in policy mixes (what they name as elements) is too narrow, and that the characteristics and policy processes connecting to policy mixes should also be considered. Empirically, the attention of policy mix studies in sustainability transitions has mostly focused on transport policies (e.g., [8,4,9]) and renewable energy policies [5] with, we argue, too little attention on building energy efficiency.

It has recently been acknowledged that business model innovations have an important role, beside technological change, in stimulating low carbon transitions particularly in the built environment [10]. At the interface of the energy and building sectors, new business models, particularly associated with energy services, are important in inspiring

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solutions that both enable the adoption of building-integrated renewable energy and improve energy efficiency through improved insulation, ventilation and building control [11]. Such a holistic take on improving the energy performance of buildings has been associated, for example, with systemic innovation in the form of zero-carbon buildings, passive houses and deep energy retrofits (e.g., [12,13]). Whilst the energy service company (ESCo) model has received most attention (e.g., [14,15]), several other business models also exist at the boundary of the energy and building sectors. Such business models offer novel ways to think about energy use and supply within buildings contrary to conventional modes of construction and use. Hence, we consider integrated energy service companies (IESCs) providing a holistic take on building energy performance as boundary actors, partly detached from the dominant energy and construction regimes, and offering potentially valuable insights on policy mixes through client-oriented evaluation.

Quantitative evaluations on policy mixes are typically unable to capture policy mixes involving non-economic instruments and, thus, the potential or actual effects of policy mixes on transitions comprehensively. Thus, there is a need to explore methods to evaluate broader policy mixes. There is also disconnect between the literatures on policy evaluation and policy mixes for transitions; the former could be employed to shed more light on the different ways in which policy mixes could be evaluated. Thus, in this article, we draw on the literatures of policy and programme evaluation (e.g. [16]), policy mixes (e.g., [1,17,7]), and technological innovation systems (TIS) (e.g., [18,19]) to propose an additional way to evaluate policy mixes from the perspective of sustainability transitions. To our knowledge there are no previous publications connecting the literatures of policy evaluation and policy mixes in sustainability transitions. Previous studies on the evaluation of innovation policy mixes are also detached from the policy and programme evaluation field (with the exception of Magro and Wilson [17]), making this a new contribution in this field. Empirically, drawing on the Kivimaa and Kern [1] and Rogge and Reichardt [7] frameworks, we aim to evaluate the extent to which the building energy efficiency policy mix in Finland portrays characteristics supporting creative destruction towards zero-carbon buildings. We apply ideas from stakeholder and client-oriented evaluation methods [16], focusing on the perceptions of IESCs about the policy mix and contrast it to previous top-down, ex-ante oriented analyses [6,1]. More specifically, we ask:

1 How, from the perspective of IESCs, the mix of energy efficiency policies for buildings in Finland addresses the creation of low-carbon innovations and destabilisation of high-carbon building and energy regimes?
2 From the perspective of IESCs, how coherent, consistent and comprehensive is the policy mix?
3 What is the benefit of client-oriented evaluation for policy mix analysis?

Section 2 outlines the theoretical starting points from the policy mix literature. Section 3 presents our research approach, starting with the need to evaluate the 'tranformativeness' of policy mixes, outlining relevant policy evaluation approaches and ending with description of methods and the case study background. Section 4 presents the findings, discussed in Section 5. The paper ends with conclusions in Section 6.

2. Theoretical starting points

2.1. Policy mixes

There is an expanding literature on (innovation) policy mixes addressing two main points. First, Flanagan et al. [20] have convincingly demonstrated that policy mixes emerge in 'real world' contexts and, therefore, optimally designed mixes of goals and instruments do not exist. Empirical studies on the Dutch energy sector [21] and UK building energy efficiency policy [6] have shown how new policy instruments are rather added to an existing mix of policies. Howlett and Rayner have, in support of this, illustrated that the way in which policy mixes form over time can have different types of characteristics from the layering of goals and instruments to the replacement of either goals or instruments (drift and conversion), or to redesigning whole mixes [22,23,21], the latter being the rarest case.

Second, policy mixes are formed by (partly overlapping) goals and instruments of different jurisdictions, levels of governance and policy domains; ranging from dedicated science, technology and innovation policy to sectoral policies with influence on innovation even at the absence of specific innovation goals. According to Magro and Wilson [17], increasing policy complexity has made it common that many innovation policies "co-exist within the same country or region, based on different rationales, employing different instruments, and corresponding to different policy domains" (p. 1647). Lanahan and Feldman [24] demonstrate, through the focus on US state and federal innovation policies, how innovation policy operates in a multilevel context, including multiple jurisdictions with overlapping objectives and diverse mandates. Kivimaa and Kern [1], when looking at policies affecting innovation in energy efficiency, observed that the policy mix crosses over several administrative domains pertaining to energy, climate, innovation, transport, environment and fiscal policies. This means that policy mixes influencing innovation tend to be much larger than those intentionally designed to stimulate innovation, and that sectoral policies, such as those addressing building energy efficiency, form part of the innovation policy mix. The existing research has so far addressed this point insufficiently. Further, the broad context of policy mixes creates challenges for policy evaluation.

The literature often associates policy mixes as mixes of regulatory, economic and 'soft' instruments (e.g., [25,26]) with the majority of articles addressing mainly instrument mixes. These can then be divided into more specific instrument types, including informational, voluntary, R & D and regulatory instruments as well as public procurement, taxation, and subsidies [6]. However, Rogge and Reichardt [7] argue for the importance of both policy goals and instruments in the mixes, and create a more comprehensive framework to understand them. The interaction between broader policy goals and more detailed policy mixes is important to determine, if policy mixes are actually to address the objectives presented at the broader strategy level. They also point out the importance of examining policy processes (including policy making and implementation) and policy characteristics (consistency of elements, coherence of processes, credibility and comprehensiveness) in addition to policy elements (the policy strategy and instrument mixes). In addition, del Rio [27] has previously paid attention to synergies and conflicts in policy mixes.

The previous literature on policy mixes is only loosely interconnected, because the different sectoral strands (such as for innovation or for energy efficiency) and the political science approach on policy mixes seldom interact. However, when looking at academic literature on policy mixes across these domains, it tends to address three broader topics: (1) the kind of policy mixes that exist and how they have evolved (e.g. [20,23,6,21]); (2) the ways in which the instruments in the policy mix interact with each other (e.g. [27–29]) and; (3) the impacts of the overall policy mix to a given goal, such as renewable energy [30] or innovation [4]. In this paper, we are particularly contributing to the latter through a client-oriented evaluation approach but also pay some attention to the interaction between instruments, goals and policy processes.

In the context of innovation policy mixes, particular attention has recently been paid to low carbon innovation, renewable energy and energy efficiency. For example, Cantner et al. [30] studied how policy mixes influence co-inventor networks in German renewable energy. Kivimaa and Kern [1] focused on energy efficiency in Finland and the UK. Mahzouni [31] analysed the policy mix for low carbon urban