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Transferability of demand-side policies between countries

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ABSTRACT

The development of methods to determine the transferability of policies between countries has received limited attention in the energy policy field. Previous research has focussed on theoretical or less formal determinants of energy policy transferability, rather than providing practical analytical tools. The paper presents a practical framework for analysing the transferability of demand-side management (DSM) policies, and to identify where policies are transferable at different levels of policy transfer. The paper tests the framework to determine the transferability of different types of DSM policy across 30 countries and 36 sub-national states. The method is a contextual-based analysis that matches up countries/states that have a comparable context at the proposed three levels of policy transfer: direct copying, adaptation and inspiration. The paper utilises Multi-Criteria Decision-Making analysis with 17 DSM experts to validate the breakdown of contextual factors at different levels of policy transfer. Four groups of countries are identified where policy transfer is possible at the adaptation level and seven groups of countries/states are identified at the inspiration level. Overall, the paper argues that context is key and the level of contextual detail included in methods to analyse energy policy transferability will affect the level of policy transfer that is appropriate.

1. Introduction

Policy evaluations that show government policies to have been successful are usually followed by debates around the transferability of those policies to other countries and jurisdictions. However, surprisingly, the development of methods to formally analyse policy transfer is limited in the energy policy field, particularly in the academic literature. Instead, discussions revolve around general statements that the performance of a policy in a particular country could be replicated in the country in question.

A review of the academic literature in the field indicates that few studies have been undertaken on energy policy transferability. Two notable examples are Steinbacher (2015), who used semi-structured interviews to examine the specific case of renewable energy policy transfer between Germany and Morocco, and Dastan (2011), who used a literature review to explore the transfer of regulatory energy market reform specifically between the UK and Turkey. Beyond interviews and literature reviews, methods for determining energy policy transfer are underdeveloped. Furthermore, previous studies tend to concentrate on energy policy transfer between two specific countries rather than multiple countries, or focus on related policy areas, such climate policy (e.g. Smith, 2004) or environmental policy (e.g. Swainson and De Loe, 2011).

This paper aims to contribute to filling these methodological gaps by presenting research to develop and test a new approach for determining the transferability of energy policies. In particular, the paper focuses on demand-side management (DSM), which is much under-researched with regards to energy policy transfer. DSM refers to actions and programmes on the demand-side of energy meters that seek to manage energy consumption in order to meet various policy objectives, such as carbon emissions reduction and energy security (Warren, 2014). The paper aims to answer the following research question:

> *What factors influence the transferability of successful DSM policies between countries, and how transferable are such policies?*

The paper also proposes a second methodological approach based on a simplified form of Multi-Criteria Decision-Making (MCDM) analysis to valid the main method.

The primary argument of this paper is that statements on policy transferability should be framed in terms of the similarity of specific contextual factors, such as market structure, climate, system structure and energy demands, and should identify the specific level of policy transfer.

Section two provides a theoretical discussion of policy transferability, drawing on literature from the field of political science, before proposing a framework for determining the transferability of energy policies at different levels of policy transfer. Section three outlines the methodological approach for answering the research question, which

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revolves around the development and testing of a new hybrid quantitative-qualitative contextual-based analysis. How contextual factors are broken down at different levels of policy transfer in the proposed framework is validated using primary data from the MCDM analysis. Section four presents and discusses the results from analyses at the adaptation and inspiration levels of policy transfer. Section five provides the research conclusions and the main policy implications.

2. Theory

The paper undertook a comprehensive literature review of primarily journal papers, books, industrial and institutional reports, government documents, interviews and audiovisual material in the area of demand-side management (DSM). DSM encompasses energy efficiency (the delivery of the same services for less energy input – International Energy Agency (IEA) (2014), energy conservation (an overall reduction in energy consumption – Davito et al., 2010), demand response (the response of consumers to price changes or incentives payments – Albadi and El-Saadany, 2008), and on-site back-up generation (Eissa, 2011) and behind-the-meter storage (Warren, 2014, 2015). The literature review highlighted that research on policy transferability is not only limited in the DSM field, but in the wider energy policy field (examples include: Steinbacher, 2015 (renewable energy) and Dastan, 2011 (energy market reform)). Research on other types of transfer in the energy field, such as technology transfer and knowledge transfer, are much more extensive than policy transfer (examples include: Zhang and Gallagher, 2016 (solar photovoltaics); Talaei et al., 2014 (low carbon technologies); Liu and Liang, 2011 (carbon capture and storage); and Ockwell et al., 2008 (low carbon technologies)).

There has been much work undertaken on the lessons learned from DSM policy implementation, but this is discussion-based rather than methodological. Much of the work on policy transferability has been conducted in other disciplines. However, this literature similarly draws on theoretical discussions from political science rather than practical methodological discussions (e.g. Newmark, 2002; Dolowitz and Marsh, 1996; Rose, 1993; Rose, 1991; Radaelli, 1997; Bennett, 1991a; Bennett, 1991b). Theoretical frameworks have been produced (such as Rose, 1991), but how this translates into a practical method for determining the applicability of policy experiences between countries is not provided. This forms the research rationale for this paper – to contribute to developing methods to analyse policy transferability in the DSM (and wider energy) policy field. Section three discusses the proposed method, which aims to answer questions such as: “utility obligations have worked well in some European countries – can they be transferred to Asian countries?” or “what DSM policies could be successfully implemented in South Korea based on the experiences of other countries?” An important pre-requisite for answering such questions is an acceptance that a particular policy has been successful in the country where the experiences are being transferred from. This is discussed further in section three.

From the political science literature, Dolowitz and Marsh (1996) define policy transfer as referring “to a process in which knowledge about policies, administrative arrangements and institutions in one time and/or place is used in the development of policies, administrative arrangements and institutions in another time and/or place (p. 344). In a comprehensive review of policy transfer and diffusion, Newmark (2002) conveys how it includes lesson drawing, policy convergence, emulation and “systematically pinching ideas”. Furthermore, he cites Rose (1991), a seminal piece in the field, to highlight how governments look to other nations to find remedies to problems. In the case of energy policy, this may refer to governments examining how previously implemented policies for energy security, carbon emissions reduction or reducing energy bills (among other policy objectives) in other countries were designed, implemented and evaluated. This is also relevant at the local government level (such as sub-national states, regions, cities and provinces).

An example in relation to demand-side energy policy is the development of utility obligations across Europe as a result of the successful experiences of the UK's utility obligations since 1994. Utility obligations refer to mandatory activities that energy suppliers or distribution companies must undertake in order to meet given targets for energy or carbon savings over a given time period (usually 2–4 years). A number of European countries, such as Italy, France and Denmark, copied aspects of policy design and implementation from the UK (Eyre et al., 2009; Bundgaard et al., 2013b). This led to the European Union (EU)’s 2012 *Energy Efficiency Directive* (2012/27/EU) requiring that all member states must introduce utility obligations (or an appropriate equivalent policy) for the period 2014–2020.

Due to differences in context between countries (or sub-national states), it appears appropriate for the country/state in question to look at its past experiences with similar policies before looking at the past and current experiences of other countries/states. In both cases, it prevents “reinventing the wheel” where solutions already exist (Newmark, 2002), either internally or externally. Furthermore, the practical transferability of policies can come in various forms, from the direct copying of legislation, regulatory frameworks, policy design and implementation processes, to simply taking inspiration from successful policies in other countries/states and transferring broad ideas.

Rose (1991) breaks down transferability into five categories: copying, emulation, hybridisation, synthesis and inspiration. In addition to direct copying and gaining inspiration, emulation refers to the adoption of a standard basis starting point but then allowing for adaptations to the needs of the adopter (Rose, 1991). An example of this in DSM policy is the UK's pilot testing of energy efficiency as a resource in its capacity market between 2014–2017. The UK adopted aspects of policy design from the PJM capacity market in the USA (Titus et al., 2009), but adapted the testing and implementation of energy efficiency as a capacity resource to the structure of the UK's capacity market and requirements. Hybridisation involves the merging of ideas from two different countries/states (Newmark, 2002), for example, using similar aspects of policy design and implementation but adapting the policy to a different context by using different administrative means (Rose, 1991). Synthesis is an extension of hybridisation, as it involves taking aspects of policy design and implementation from three or more different countries/states (Newmark, 2002).

This paper builds on these works by proposing a framework for policy transferability, which uses the general definition of policy transferability provided by Dolowitz and Marsh (1996) and adapts Rose (1991)’s five categories into three broader categories, as shown in figure one. Figure one provides the theoretical construction of the framework and section three provides the practical construction of the framework. (Fig. 1)

The *Policy Transferability Framework* has three broad levels of transfer: direct copying, adaptation and inspiration. ‘Direct copying’ refers to the direct translation of policies, such as design, implementation, evaluation, legislation and regulatory frameworks. ‘Adaptation’ refers to the copying of policies, but adapting them to the contextual conditions of the country/state in question through multi-arm hybridisation (merging aspects of policy design and implementation from three or more other countries/states, as per Rose (1991)’s ‘synthesis’ transfer category), focused hybridisation (merging aspects of policy design and implementation from two other countries/states, as per Rose (1991)’s ‘hybridisation’ transfer category), or emulation (copying aspects of policy design and implementation from one other country/state as a starting point but then allowing for adaptations to the contextual conditions of the country/state in question, as per Rose (1991)’s ‘emulation’ category).

Rose (1991)’s ‘synthesis’ is not used due to the definitional clash in relation to synthesis in evidence reviews or document analyses. Furthermore, Rose (1991)’s use of the word is not self-evident without explanation. ‘Inspiration’ refers to the copying of ideas from the implementation of policies in other countries/states in the past, or