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# **Configurations of New Public Management reforms and the efficiency, effectiveness and equity of public healthcare systems: a fuzzy-set Qualitative Comparative Analysis**

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## **Abstract**

Fuzzy-set Qualitative Comparative Analysis identifies configurations of New Public Management (NPM) reforms (privatization, consumerism, performance management, and corporatization) associated with perceptions of improvements in healthcare efficiency, effectiveness and equity in fourteen European countries. Although these outcomes are pursued concurrently, no combination of the considered reforms appears to support success or failure across the board and the inter-relations between reforms shape their effects. Three NPM reform profiles are evident in Europe; (1) *strong* reformers, adopting a comprehensive package of reforms that are perceived to perform better than (2) *partial* reformers, with (3) *limited* reformers also doing better than partial reformers.

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## **Introduction**

The scale of NPM reform in many European public sectors has led to wide-ranging discussion about whether and under what conditions ‘NPM can work’ (e.g. Dan and Pollitt 2015; Drechsler and Randma-Liiv 2016), as well as its’ intended and unintended effects (see Simonet 2011). However, integrative international comparative analysis of the positive and negative effects of NPM tools has proved challenging (see Drechsler and Randma-Liiv 2016). Due to their varying administrative traditions, countries have tended to follow different reform trajectories, in part reflecting institutional path-dependency (Hammerschmid et al. 2016) such that past institutional choices predetermine further development (Kuhlmann, 2006). As field level logics shift, this can result in ‘the simultaneous appearance of institutional logics in organizational contexts’ (Polzer et al., 2016, 69).

Institutional logics are organising principles that guide ‘how to interpret organizational reality, what constitutes appropriate behaviour and how to succeed’ (Thornton, 2004, 70), by focusing attention on the issues and solutions aligned with the dominant logic (Thornton, 2004). Logics manifest in practices and structures that help to gain guide action in the world (Greenwood et al. 2011). Hybrid reform combinations can entail coexistence of logics and their associated practices in a range of ways, leading either to complementarity and synergistic benefits or to tension from the combination of inconsistent practices (Christensen & Laegrid, 2011a). In extremis, overt contest and incompatibility may result (Fischer and Ferlie, 2013). Importantly, this aligns with the configurational perspective on public governance, which suggests that the impact of any given reform is likely to depend on the presence or absence of other reforms (Lynn, Heinrich and Hill 2000) because their overall impact cannot be understood as the ‘mere summing of independent elements’ (Lynn, Heinrich and Hill 2000, 236). Yet most extant work on NPM reforms addresses the impact of a single reform within a single country (e.g. the quasi-market within the NHS in the United Kingdom, see Propper,

Burgess and Green 2004), or more latterly across countries (e.g. agencification, see Overman and van Thiel 2016), or focuses on a single dimension of performance, especially efficiency (e.g. Alonso, Clifton and Díaz-Fuentes 2015). In fact, surprisingly little research has systematically compared the effects of alternative configurations of NPM reforms on public services across different European countries, let alone on outcomes pursued concurrently (though see Plümper and Neumayer 2013).

As a result, we ask *‘what configurations of NPM reforms are associated with improvements in the efficiency, effectiveness and equity of healthcare systems?’* The organization of systems to coordinate healthcare services and to meet people’s health needs has become a key issue for governments across the globe (World Health Organization 2007). Within healthcare, as in the public sector more broadly, *‘debate on the role of the state on how and where it should intervene’* (OECD 2013, 3) requires balancing multiple objectives (Plümper and Neumayer 2013), and especially the desire to achieve improvements in the efficiency, effectiveness and equity of service provision. In particular, we note that in response to economic arguments regarding public service improvement many countries have introduced New Public Management (NPM) style reforms associated with a market logic. In particular, privatization and contracting out; consumerism; performance measurement and management; and agencification/corporatization have been adopted with the aim of improving public healthcare by making it more business-like (Byrkjeflot 2011). To address the important gap in our understanding of the configurational effects of public management reform, we draw on the perceptions of high-ranking civil servants in the health ministries of fourteen European countries, to study the relationship between privatization, consumerism, performance management and corporatization, and perceived improvements in the efficiency, effectiveness and equity of public healthcare.

In doing so, our approach advances extant research in three main ways. First, we move beyond a narrow focus on the efficiency effects of NPM reforms, to examine their impact on effectiveness and equity as well. Second, we examine the connection between a commitment to NPM reforms and the improvement of public healthcare services across multiple countries, rather than within a single country. Third, we utilize fuzzy-set Qualitative Comparative Analysis (fsQCA) to carry out our study (see Ragin, Strand and Rubinson 2008), which enables us to identify alternative pathways to the same outcome (equifinality), and to evaluate configurations of reforms associated with strong and weak performance improvement (causal asymmetry). This technique is especially valuable for configurational analysis and is also well-suited to cross-country comparisons as it preserves the integrity of each case (country) more effectively than multivariate statistical techniques (Haynes 2014).

Next we theorise the concept of hybrid reforms. We then develop some theoretical expectations about the likely relationship between privatization, consumerism, performance management, and corporatization, and the efficiency, effectiveness and equity of public healthcare provision. Thereafter, we describe the data and methods used in our analyses, present our findings, and discuss their implications.

## **NPM reforms and public healthcare performance**

Although the high-tide of the NPM phenomenon has arguably passed, NPM-style reforms have re-shaped the public sector in many European countries (Hammerschmid et al. 2016), and healthcare services in particular (Simonet 2011). NPM reforms are driven by the belief that the state should be made more cost-effective by opening it up to private sector influence (Christensen and Laegrid 2011b). This has involved the introduction of a market orientation in the field level institutional logic, with a related (albeit incomplete) shift away from the previously dominant ‘traditional public administration’ logic (Anessi-Pessina and Cantu,

2016). Importantly, even where one logic is dominant, organizations facing multiple logics may encounter tension between potential means and goals (Greenwood et al. 2011). Although NPM has led to a focus on efficiency aligned with a need to control costs (Hurst and Jee-Hughes 2001), efficiency, effectiveness and equity have long been regarded as critical criteria for capturing the overall performance of healthcare systems (see, for example, Tones and Tilford 2001) and tensions in the pursuit of these outcomes are likely. Indeed, together with institutional path dependence, contradictory objectives are likely explanations for the uneven trajectory of NPM reform across counties (Byrkjeflot 2011; Hammerschmid et al. 2016). Both can lead to the emergence of hybrid reform combinations, with scope for complementarity and synergistic benefits, but also for tension arising from the combination of inconsistent practices (Christensen & Laegrid, 2011a). Hybrid reforms can entail coexistence of logics and their associated practices in an ongoing manner or as part of a transition leading to replacement of one logic by another (Christensen and Laegrid, 2011a). Alternatively, blending involves the emergence of something new, integrating original components that are no longer distinguishable. In contrast, layering involves hybridity premised on adding elements such that ‘new reforms complement or supplement old reforms rather than replacing them’ (Christensen and Laegrid, 2011a, 419). Layering, also known as ‘sedimentation’, has previously been found as most evident in public sector reform (Polzer et al. 2016) with practices – such as those associated with NPM - added alongside or on top of existing ones.

NPM practices have included attempts to increase private sector involvement, ensure that service users are treated more like customers, manage performance and results, and give managers greater autonomy over operational decisions. However, surprisingly few studies have investigated the relationship between these reforms and the improvement of public healthcare systems. More specifically, none to our knowledge, consider the salience of different configurations of NPM reforms, even though complexity and hybridity are now assumed to be

common in public administration (Christensen and Lægrid, 2011a) and in healthcare (Simonet, 2011; Tuohy, 2012), with potential for coexistence of multiple institutional logics in the field. In what follows, we assess existing theory and evidence on the effects of NPM reform practices in healthcare systems separately, before developing initial theory on their potential configurations and combinative outcomes.

### *Privatization*

According to public choice theorists, the transfer of public services to private sector ownership can circumvent budget-maximizing behaviour and producerism by politicians and bureaucrats (Savas 1987). By forcing in-house activities into an environment characterized by competition amongst potential service providers, production costs should be reduced (Osborne and Gaebler 1992). In addition, performance should improve, as - in private firms'- innovations generate benefits tangible to those responsible for their implementation (Shleifer and Vishny 1994). The theoretical benefits of privatization are said to be especially applicable where there is a competitive market of alternative providers for the production of public services, such as healthcare (Pack 1987). Nevertheless, there are reasons to be skeptical about the potential for privatization to result in performance gains within healthcare systems.

While few studies investigate the impact of privatization on a healthcare system as a whole, prior research on its effects within specific parts of such systems is insightful. Specifically, there is mixed evidence regarding the effects of privatization on hospital efficiency within single countries, with some studies finding public hospitals are more efficient (e.g. Alonso et al. 2015) and others pointing towards privatized hospitals (e.g. Tiemann and Schreyogg 2012). Nevertheless, efficiencies in privatized hospitals may have only been achieved at the expense of service quality (Tiemann and Schreyogg 2009). Indeed, studies of contracting out within hospitals indicate that even if efficiency gains can be realized, private

involvement can result in worse quality and equity (Alonso, Clifton and Díaz-Fuentes 2016). Hence, we anticipate that a commitment to privatization within a healthcare system will be associated with strong efficiency gains, but weaker improvements in effectiveness and equity.

### *Consumerism*

Efforts to enhance the customer orientation of public organizations reflect NPM's emphasis on the private sector's responsiveness to market pressures (Aberbach and Christensen 2005). Where public service users are better informed, able to communicate with, and influence the decisions of service providers, those providers are arguably better placed to direct and distribute their resources more efficiently and effectively (Jung 2010). Key to embedding a customer orientation within public healthcare systems has been the idea that service providers treat service users as customers in the ways that private firms and businesses arguably do (Fountain 2001), and that patients, in turn, are encouraged to develop expectations of superior customer service (Coulter and Magee 2003).

In addition to inculcating a broader customer orientation, self-management and service co-creation programmes as well as patient surveys and consultation processes, have been introduced to empower public healthcare service users and improve service quality (Dent and Majda 2015). Extant literature suggests that while professionals dominate the client-provider relationship, service users have become more knowledgeable advocates of their own needs (e.g. Wilson, Kendall and Brooks 2007). However, despite calls for research in this area to address outcomes rather than processes (Entwistle, Sowden and Watt 1998), little is known about whether 'patient voice' results in tangible service improvements. Evidence from local government suggests that treating service users as customers can enhance how fairly different social groups are treated, even if it doesn't produce other performance gains (Andrews and Van de Walle 2013). On this basis, we expect a commitment to consumerism within a healthcare



system to be related to improvements in equity, but to make little difference to efficiency or effectiveness.

### ***Performance management***

The adoption of performance management and measurement techniques by public organizations has become one of the enduring legacies of NPM (Arnaboldi, Lapsley and Steccolini 2015). In particular, ‘managing for results’ has become an important complement to the traditional emphasis on managing inputs (budgets and staff) and processes (rules and structures), with some countries engaging in performance-based budgeting (Grossi et al. 2018). Performance management development has been especially apparent within healthcare systems, as governments have endeavoured to find ways to encourage healthcare providers to meet rising public expectations and control costs (Hurst and Jee-Hughes 2001).

Some commentators have critiqued use of performance management in the public sector, arguing that it distorts organizational priorities and inhibits innovation (Arnaboldi et al. 2015). However, the few healthcare studies that have evaluated the performance effects of a focus on outcomes and results suggest that it can generate service improvements, and that its’ dysfunctional side-effects are overstated. For example, shorter hospital waiting times (Kelman and Friedman 2009), and improvements in patients’ satisfaction (Grosso and Van Ryzin 2012), have been attributed to the introduction of targets. At the micro-level however, Macinati (2008) uncovers no efficiency gains for Italian health care providers from the use of new management information systems. Overall, available evidence suggests potential for a focus on outcomes and results to lead to improved effectiveness, but scope for gaming and goal displacement (Bevan and Hood 2006) to result in worse equity. While it may have no direct relationship with efficiency, it is possible that a commitment to performance management indirectly influences costs through its connection with other reforms (see more below).

### *Corporatization*

Corporatization, or agencification, involves the disaggregation of large public agencies into smaller semi-independent units. From a NPM perspective, establishing single-purpose agencies and ‘arms-length management organizations’ shifts control over policy delivery from politicians and their administrative counterparts to professional managers motivated to find innovative solutions to service delivery problems, and thereby reduce costs (Osborne and Gaebler 1992). In addition, such disaggregation aims to separate purchasing and providing functions, which should incentivise purchasing agents to force the price of service delivery downwards (Hood 1991) and increase pressure on managers by creating clearer lines of accountability to higher levels of government.

Within healthcare, corporatization has largely involved the establishment of autonomous hospitals, held liable for their financial management (Braithwaite, Travaglia and Corbett 2011). A growing literature provides mixed evidence on their achievements. Lee, Chun and Lee (2008), for example, find that newly-established single-purpose hospitals in Korea are more efficient than their traditionally-managed multipurpose counterparts, as do Lindbauer, Winter and Schreyogg (2016) for corporatized hospitals in Germany. Research evaluating independent hospital trusts in the UK indicates that efficiency gains were realised in English (Soderlund et al. 1997), but not in Scottish hospitals (Ferrari 2006). In Portugal, despite being less efficient, non-corporatized hospitals are actually more productive (Ferreira and Marques 2015). While the mixed evidence makes it difficult to formulate definitive expectations regarding the improvement effects of corporatization, most observers suggest that they will be akin to those hypothesized for privatization (Braithwaite et al. 2011). Hence, we anticipate that a commitment to corporatization may be associated with improved efficiency, but no change in effectiveness and equity.

### *Combined effects of NPM reforms*

The configurational perspective on public governance and theories of hybrid public administration stress the need to understand the complex inter-relationships between institutional structures, administrative traditions and reform trajectories (Christensen and Laegrid 2011a; Lynn et al. 2000). Although some reforms may work best as standalone interventions, large-scale programmes of change are likely to depend upon a range of factors (Dan and Pollitt 2015). This is especially so for reforms that promote the involvement of private firms in public service provision, where government has to invest in contracting, and ensure that it is possible to compare ‘quality and quantity of product or service delivered against contract specification’ (Prager 1994, 179). Likewise, the creation of corporatized healthcare entities is likely to require careful monitoring by institutions with the authority to ensure that established standards of public accountability are upheld (Cheung 2002). For this reason, performance management reforms may hold the key to making other NPM reforms work. Where public sector outcomes are carefully measured and managed, it is more likely that the implementation of strategic changes will be successful (Pollanen et al 2017). At the same time, it is conceivable that consumerism also plays a critical role in determining the success of structural NPM reforms, such as privatization and corporatization. These approaches to public service delivery imply a cultural transformation in attitudes towards service production, and so may only deliver promised performance gains when a customer service orientation is present (Coulter and Magee 2003).

Aside from a general expectation that performance management and consumerism may be necessary conditions for ensuring that other reforms have positive results, we have no preconceived ideas about the full range of possible combined effects of NPM reforms. As configurational and hybridisation theories highlight, reform configurations and subsequent

effects may potentially be as numerous and unique as the countries in which reforms have (or have not) occurred. For that reason, we follow the practice of other researchers employing fsQCA (e.g. Schneider and Wageman 2010) and adopt an inductive approach to identifying configurational relationships between our selected reforms (privatization, consumerism, performance management and corporatization) and better and weak improvement efficiency, effectiveness and equity. FsQCA enables us to do this in a rigorous and robust way – one of its’ major strengths is that it derives configurational combinations of attributes associated with an outcome.

## **Data and methodology**

Here, fsQCA is used to identify the different configurations of NPM reforms associated with strong or weak improvement in the efficiency, effectiveness and equity of the public healthcare systems of fourteen European countries. Initially developed for small-sample research, fsQCA is a valuable technique for systematic cross-country comparative analysis, enabling consideration of more cases than otherwise feasible (Young and Park 2013). Key features include: the facility for modelling *conjunctural causation*, whereby combinations of causal conditions (e.g. reforms), rather than one condition alone, are linked to an outcome; identification of *equifinality*, where more than one combination may be linked to the same outcome; and *casual asymmetry*, where appropriate and deficient performance have different explanations (Fiss 2011). It also has capacity to identify *necessary* causal conditions, such that an outcome cannot occur without them, as well as *sufficient* conditions, such that the outcome always occurs when a condition is present - although the outcome could also result from other conditions (Rihoux and Ragin 2009). These features are particularly valuable in policy implementation contexts characterized by a high degree of complexity and hybridity (Chaebo and Medeiros 2017). Here, fsQCA enables us to address an important gap in the current

scholarly literature on public management reforms, by identifying alternative configurations of NPM reforms and their varying impacts, all typically considered in isolation.

The analysis utilizes data from the COCOPS comparative survey conducted in Austria, Denmark, Estonia, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom. The survey covered the population of high-ranking civil servants in each country, including those working specifically within national and regional health ministries. Respondents held roles requiring them to provide policy advice and oversee implementation, and were selected as most likely to hold relevant knowledge regarding NPM reforms (see Hammerschmid et al. 2013).

The focus on these 14 countries ensured comparability of the information used for the fsQCA. The survey was distributed within the same year to each of the selected countries and those countries are all OECD members, whereas some of the other countries in the final COCOPS dataset were surveyed much later (e.g. Iceland) or were not members of the OECD (e.g. Lithuania). The COCOPS data include responses from senior civil servants at the regional level in Germany and Spain, so we capture decentralised healthcare management within these countries. Nevertheless, further research is required to evaluate the role that local level healthcare management plays in shaping reform trajectories and outcomes in highly decentralized countries, such as Italy.

The survey was issued to nearly 3,000 respondents, in each country's language. Invitations were followed by reminders. The dataset was cleaned, checked and harmonized by the central research team. 894 valid responses gave an overall response rate of 30%. Bezes and Jeannot (forthcoming, 5) emphasise that although the sample in the COCOPS project is not necessarily 'representative of the real distribution of top civil servants within and among ministries and agencies in each country', the distribution of responses is nevertheless 'satisficing'. We therefore follow Bezes and Jeannot (forthcoming) in regarding the COCOPS

dataset as a valuable source of information for addressing understudied topics in the field of public administration; in this case, the relationship between multiple NPM reforms and the performance of multiple public healthcare systems.

### ***Public healthcare performance improvement***

Public sector performance is complex, multidimensional and evaluated from the perspective of many different stakeholders (Boyne 2002). Ideally, analysis of the relationship between public management reforms and performance improvement would draw upon several performance dimensions of interest to key stakeholders. We measure public healthcare performance improvement using high-ranking civil servants' perceptions of changes in the efficiency, effectiveness and equity of the system. Senior civil servants are responsible for the management of the system and are therefore able to provide an expert viewpoint on system improvement as a whole (Pidd and Hayes 2005). Although indicators of healthcare inputs and outputs are available, there is little readily comparable data on the overall improvement of European healthcare systems. Hence, to ensure consistency in our analytical approach we draw upon the best available survey data capturing system-wide outcomes.

Informants indicated from 1 (deteriorated significantly) to 7 (improved significantly) how well their healthcare system performed. Specifically, respondents were asked: 'Thinking about your policy area over the last five years how would you rate the way public administration has performed on the following dimensions (outcome variables): 'costs and *efficiency*'; 'policy *effectiveness*'; and, 'equal access to services' (*equity*). The first gauges how well resources are managed (i.e. the extent to which providers pay a reasonable price for inputs and outputs). The second dimension captures successful (or otherwise) policy implementation (i.e. the extent to which health policies achieve desired outcomes). Finally, the third dimension evaluates the availability of services to disadvantaged social groups (i.e. the extent to which

poor people are able to access the same services as wealthy people). To facilitate their inclusion in the fsQCA analysis, responses to each of the questions are aggregated to country-level.

There remains a healthy debate on the merits of perceptual versus archival performance measures (see, Anderson, Boesen and Pedersen 2016; George and Pandey 2017). Although the responses to the questions in the COCOPS survey are inevitably subjective, by drawing upon senior managers' perceptions rather than "objective" indicators of healthcare outcomes, we are able to assemble a dataset that controls for variations in the quality of budgetary and performance information that are available in different countries. Prior research has found managers' perceptions of performance to be valid, reliable and sensitive (Brewer 2006). Importantly, such perceptual data may be the only comparable information available on the achievement of different dimensions of performance across multiple countries (Missinne, Meuleman and Bracke 2013). Similar arguments apply to our use of survey data to measure commitment to NPM reforms.

### ***NPM reforms***

Informants indicated how important different reform trends were in their policy area (healthcare in this instance) on a seven-point scale from 1 (not at all) to 7 (to a large extent). Here we focus on responses to whether the following reforms (condition variables) were important: *privatization*; treatment of service users as customers, known as *consumerism*; focusing on outcomes and results via *performance management*; and, the creation of autonomous agencies/*corporatization*. These measures have strong face validity, since they ask directly whether a specific type of NPM reform was important. Table 1 shows the descriptive statistics for the outcome and condition variables.

[Table 1]

## ***Method***

FsQCA v2.5 software was employed (Ragin et al. 2008) to carry out the analysis. Figure 1 summarizes the steps undertaken in the fsQCA analysis.

[Figure 1]

Data pre-processing was undertaken using the direct method approach to coding (Ragin et al. 2008). Condition and outcome variables were calibrated to create fuzzy membership scores ranging from 0.0 to 1.0. These membership scores were then assessed to evaluate the degree to which each country displayed each attribute. Following Rihoux and Ragin (2009) and Andrews, Beynon and McDermott (2016), qualitative anchors for membership of an attribute were initially derived as the 5<sup>th</sup> percentile (lower-threshold – e.g. definitely not improved equity), 95<sup>th</sup> percentile (upper-threshold – e.g. definitely improved equity) and 50<sup>th</sup> percentile values (crossover point – e.g. maximum ambiguity about whether equity improved or not, see  $x^*$  in each probability density function (pdf) graph in Figures 2 and 3).

[Figures 2 and 3]

As recommended by Greckhamer (2011), the location of cases (countries) was qualitatively assessed drawing on theoretical and empirical knowledge. For one outcome variable (policy effectiveness), France, Norway and Estonia were closely grouped marginal cases. Consideration of relevant prior research (e.g. Davis et al. 2014; Missinne et al. 2013) led to amendment of the crossover point from 4.289 to 4.35, illustrated in Figures 3b and A2.

Table 2 shows the pre-processing calibration from interval scale reform values to fuzzy membership scores on a 0-1 domain (see also Figures A1 and A2 in Appendix A), and to 0 or



1 strong membership representation. The 0-1 domain and 0 or 1 domains are used to generate configurations of condition variables associated with an outcome, represented in a truth table (see Table 3) and used in the fsQCA analysis.

[Table 2]

### *FsQCA analysis*

With four condition variables considered (i.e. privatization, consumerism, performance management and corporatization), there are  $2^4 = 16$  different possible configurations. Table 3 shows that 10 out of the 16 possible configurations have at least one country associated with them - the frequency threshold determining inclusion in the analysis. For completeness, we derive and present both the parsimonious solution (including logical remainders) and the complex solution (excluding logical remainders), see Table 5 later.

[Table 3]

The ten empirically observed configurations reveal that Germany experienced the lowest level of reform during the period 2008-2012 (0000 strong membership values across the condition variables), while Ireland and the UK experienced the highest (1111). In between these two extremes, there are an array of reform trajectories, with countries variously exponents of one (France, Hungary, Norway, Spain), two (Italy, Netherlands, Portugal, Sweden), or three (Austria, Denmark and Estonia) NPM reforms. The findings in Table 3 illustrate that while some countries might follow a fairly predictable pattern of hostility (e.g. Germany) or receptivity (e.g. UK) to NPM, overall, there is considerable heterogeneity in its importance

within European healthcare systems, affording an opportunity to examine strong, partial and limited NPM reform profiles.

Following Greckhamer (2011), we next use fsQCA to separately investigate those configurations (*causal combinations*) associated with both high and low forms of an outcome, namely, strong and weak improvements in efficiency, effectiveness and equity (*causal asymmetry*). This analysis produces consistency scores, indicating the strength of the relationship of a configuration separately to the high and low outcome forms (see Ragin et al. 2008). To preclude a configuration from being associated with *both* stronger and weaker improvement, as per Table 4, a consistency threshold is applied. Configurations with consistency values above the respective thresholds are shown in bold in the columns in the truth table.

[Table 4]

### **FsQCA results**

Necessity analysis did not identify any variable as a prerequisite for any of the outcomes to occur (determined by a consistency value above 0.9, see Young and Park 2013). Sufficiency analysis is presented in Table 5, including both the complex and parsimonious fsQCA solutions associated with stronger and weaker improvements in efficiency, effectiveness and equity. Next, we turn our attention to the conditions, and causal combinations thereof, that produce the considered outcomes.

[Table 5]

Each of the columns shown in the top part of Table 5 represents an alternative causal combination of conditions linked to the respective high (strong  $\Delta$ ) or low (weak  $\Delta$ ) outcome. Specifically, SEC1-3 and WEC1-3 are the combinations associated with strong and weak improvements in efficiency, SFC1-3 and WFC1-2 with strong and weak improvements in effectiveness, and SQC1-2 and WQC1-2 with strong and weak improvements in equity. Within these combinations, full circles (●) indicate the presence of a condition, while barred circles (⊖) indicate a condition's absence. Further, larger circles indicate core conditions that are part of both parsimonious and complex solutions, with smaller circles indicating peripheral conditions that only occur in complex solutions.

The middle parts of the table detail the consistency and coverage values for the complex solution. The bottom part of the table offers similar information based on the parsimonious solutions (e.g. incorporating only core conditions, indicated by large circles). Since it may be safer to privilege complex solutions (Andrews et al 2016), we discuss these here.

### ***Efficiency***

Table 5 indicates that there are three complex solutions for *strong  $\Delta$ efficiency*. The first causal combination, SEC1, involves low levels of privatization, consumerism, corporatization, and performance management – essentially limited engagement with NPM reforms. Germany, which uniquely exhibits this combination, is well-known as a reform ‘laggard’ (Hammerschmid et al. 2016) but is perceived to have resource-efficient healthcare provision (Häkkinen and Joumard 2007; Missinne et al. 2013).

In contrast, SEC2 and SEC3 illustrate that NPM reforms can potentially support strong improvement in efficiency. For SEC2, privatization and performance management are complemented by low corporatization. Sweden (uniquely) and Denmark exhibit this causal combination. Sweden is known for the low cost of its healthcare system (Davis et al. 2014),

and both countries have introduced NPM-style reforms, albeit tailored to their social democratic preferences (Byrkjeflot 2011). Third, SEC3 highlights that consumerism is another path towards realizing the benefits of privatization and performance management for efficiency. In addition to Denmark, Ireland and the UK exhibit this reform profile. Both latter countries are notable proponents of NPM, with the UK's 'socialised' national healthcare system provided at particularly low cost (Davis et al. 2014), and Irish healthcare expenditure falling dramatically following the financial crisis (Karanikolos et al. 2013).

Table 5 highlights three complex solutions associated with *weak  $\Delta$ efficiency*. WEC1 combines corporatization, with an absence of performance management and consumerism evident in four partial adopters of NPM, namely France, Norway (uniquely), Italy and the Netherlands. France is another well-known reform 'laggard' (Hammerschmid et al. 2016) and has comparatively high healthcare expenditure (Davis et al. 2014). Similarly, Norway is a more reluctant healthcare reformer than its Scandinavian neighbours (Byrkjeflot 2011) and is a big healthcare spender (Davis et al. 2014). Italy has a long history of giving hospitals more autonomy (Byrkjeflot 2011) but has found cost control difficult (Simonet 2011). The Netherlands has been receptive to change, but the introduction of system-wide performance management in healthcare has trailed behind that in NPM pioneers (van den Berg et al. 2014), and public expenditure is high (Davis et al. 2014).

Three countries are associated with WEC2: Spain (uniquely), and Italy and the Netherlands. Spain is another partial adopter, undertaking privatization, particularly of hospitals (Alonso et al. 2015), but costs are thought to have risen as the system has been modernised (Acerete, Stafford and Stapleton 2011). Finally, Hungary and Portugal are both associated with WEC3. Neither has been an enthusiastic adopter of NPM reforms (adopting one and two of the four reforms respectively), however, Hungary for a time charged service

users (Nagyistók 2010), and Portugal promoted a customer care ethos (Carvalho 2014), while costs are regarded as high in both healthcare systems (Häkkinen and Joumard 2007).

Together, these findings indicate that critics of NPM may be right to question its efficiency gains (see Andrews 2011). However, they also support incomplete contract theories, which suggest that private sector involvement can bring benefits when it is carefully monitored (Hart, Schleifer and Vishny 1997). Specifically, the results indicate that privatization and corporatization should be undergirded by performance monitoring systems. They also highlight that an emphasis on customer service is unlikely to improve efficiency unless it is supported by wider structural reforms.

### ***Effectiveness***

Turning to *strong Δeffectiveness*, three complex solutions are evident. For SFC1, the presence of corporatization and privatization is complemented by weak consumerism and weak performance management. The countries uniquely exhibiting this causal combination of reforms are Italy and the Netherlands, both cautious implementers of NPM (Simonet 2011; Hammerschmid et al. 2016). For SFC2, privatization and performance management are complemented by an absence of corporatization, evident in Sweden and Denmark. For SFC3, privatization and performance management are supplemented with consumerism, a causal combination evident in Denmark, Ireland and the UK – all of whom display strong NPM reform profiles.

Two complex solutions explain *weak Δeffectiveness*. For WFC1, low levels of performance management and privatization combine with low consumerism - the inverse of SFC3's route to effectiveness above. WFC1 is evident in Germany, France and Norway. The latter two countries' care quality was poorly ranked in a recent analysis (Davis et al. 2014), while concerns have previously been raised about the overall coordination of service provision

in Germany (Lisac et al. 2010). An absence of corporatization and privatization together with the presence of consumerism are associated with WFC2, evident in Hungary and Portugal. Hungarian healthcare provision still lags behind other OECD countries on some output indicators (OECD 2015) while in recent times, patient outcomes in Portugal have been adversely affected by the fallout from the global financial crisis (Williams and Maruthappu 2013).

Together, these results suggest that (for policy-makers, at least) improvements in effectiveness are weaker where a system has experienced fewer of the major structural reforms associated with NPM. In addition, the combination of privatization and performance management found in SFC2 and SFC3 as well as SEC2 and SEC3, means that strong improvements in both efficiency and effectiveness can be supported by this causal combination. This accords with the importance of having a mechanism to hold privatized providers to account, noted previously.

### ***Equity***

Table 5 provides two complex solutions for *strong  $\Delta$ equity*. The first causal combination (SQC1) comprises low levels of privatization, corporatization and performance management. Germany and Hungary are uniquely associated with this causal combination. The antipathy to NPM reforms in both countries has largely been on the grounds of social equity (Hammerschmid et al. 2016). Our evidence corroborates that from other research showing that Germany (especially) and Hungary prioritize access to healthcare services (Davis et al. 2014; OECD 2015).

For SQC2, consumerism is complemented by performance management. Six countries uniquely exhibit this pattern of reforms: Austria, Denmark, Estonia, Ireland, Portugal and the UK. With the exception of Austria, all these countries operate national health service systems,

with universal access already ‘built-in’. Each of them has also improved patient rights and involvement (Health Consumer Powerhouse 2009; 2012).

For *weak Δequity*, WQC1, the peripheral condition of weak consumerism combines with corporatization and low performance management. This causal combination is uniquely associated with France, Italy, the Netherlands and Norway. All of these countries have emphasized organizational autonomy over other NPM reforms. That Italy and Norway seem to have done less well in terms of equity mirrors other evidence (Health Consumer Powerhouse 2009; 2012). For WQC2, low levels of corporatization combine with privatization and weak consumerism. Spain and Sweden are associated with this causal combination. Both countries operate national health service systems, but appear to emphasize patient involvement in treatment decisions less than in other countries with similar systems (Health Consumer Powerhouse 2009; 2012).

WQC1, explaining weak improvement in equity, includes corporatization, weak performance management, and weak consumerism – a combination also associated with weak improvement in efficiency (WEC1). Together with WQC2, these results again imply structural NPM reforms require an appropriate supporting apparatus if they are not to result in weak outcomes.

## **Conclusions**

NPM has acted as an exogenous pressure motivating the adoption of a similar set of institutional arrangements and reform practices across nations via isomorphism (Gross et al. 2018). However, historical institutionalism stresses the importance of institutional path dependence, with endogenous pressures resulting in distinctive institutional models (see Kuhlmann, 2006). Together, exogenous and endogenous pressures have scope to influence discursive, decisional, practice and outcomes con/divergence (Grossi et al. 2018) – with

configurations of NPM practices and multiple outcomes examined here. Specifically, we find that some NPM reforms are associated with perceptions of improved performance among policy-makers only when they are introduced in combination with other complementary reforms. In particular, performance management appears to hold the key to ensuring that privatization results in efficiency and effectiveness gains, and that corporatization does not result in weak improvements in efficiency and equity. Nevertheless, consumerism *per se* is associated with improved equity in six countries. Other isolated reforms though have less positive outcomes, with corporatization associated with weak improvements in efficiency and equity in four countries. At the same time, the (relative) absence of NPM reforms is associated with strong improvement in efficiency and equity, but weak improvement in effectiveness. These findings have important theoretical and practical implications.

Researchers analysing public sector reforms stress the complex and hybrid nature of contemporary public management and governance (Christensen and Laegrid 2011a). Public healthcare systems, in particular, consist of a diverse array of institutional arrangements for meeting the health needs of populations (World Health Organization 2007). Using fsQCA, we explored the relationship between different causal combinations of NPM reforms and perceived improvements of European healthcare systems on three separate outcomes, pursued concurrently. The findings from our study confirm the insights of scholars who emphasise the configurational nature of public governance, and, critically, indicate that reform configurations matter – some result in performance improvements, while others do not. The variations in improvement that we identify seem likely to reflect the degree of reform sedimentation present within a healthcare system, with strongly reforming countries benefitting from the layering and bedding-in of NPM reforms, whereas partial reformers lack the complementary institutional structures capable of realising such benefits. At the same time though, limited reformers appear to be achieving system-level improvements, perhaps because they are not experiencing the



disruptive effects associated with change in healthcare settings characterised by multiple objectives (Macinati 2010). It seems that countries adopting a comprehensive package of healthcare reforms and displaying a strong NPM reform trajectory do better than those adopting only a partial one, with, the further caveat, that countries making very few changes appear to do better than partial reformers. Coherence through the prevalent presence – or absence – of NPM reforms aligns with the core tenets of institutional theory, which emphasises solutions aligned with the dominant logic (Thornton, 2004). Partial reformers may introduce tensions from the combination of institutional logics and their associated practices.

For policy-makers, our analysis provides mixed support for the usual arguments advanced in favour of (and against) NPM reforms. While there is evidence that NPM can work, a unidirectional pattern of reform success is not observed for any single reform or combination of reforms. In particular, certain reforms and reform combinations seem to be best-suited for the achievement of improvement on one key performance dimension (with the exception of privatization and performance management, which supports performance across efficiency and effectiveness). Thus, policy-makers need to think carefully about whether the benefits for one dimension of performance that may accrue from some reform configurations outweigh any costs for other dimensions.

Despite the strengths of our fsQCA, the study has limitations that could inform further research. First, our results are based on a single cross-sectional survey. Future studies drawing upon longitudinal data could investigate cause and effect in more depth. Second, our survey data do not all the NPM reforms that have been implemented. Bringing together all available survey and administrative datasets could capture some of that complexity. Nonetheless, in-depth case studies are needed to fully understand reform dynamics, especially in terms of reform history and policy accumulation (van Engen et al. 2016; Wynen et al. 2017), and whether current reform combinations involve the co-existence or combination of institutional

logics (Polzer et al. 2016). Third, we draw upon the perceptions of high-ranking civil servants who may be influenced by social desirability when asked about the success of the work in which they are involved. Furthermore, while we focus only on members of the OECD, the perceptions of our respondents may still vary systematically across countries due to differing expectations and prior performance levels. For instance, respondents' views about the performance of healthcare systems may or may not be correlated with citizens' perceptions or objective indicators of improvement.

Fourth, we note that three countries – Denmark, Italy and the UK – attained strong improvement on efficiency, effectiveness and equity. Despite, having different reform profiles, each country has a longstanding public health system with eighty percent or higher financing from public taxation (Thomson et al. 2012). The differences in improvement that we still observe between these systems though (see Figure 3), speak to the likelihood of path-dependency shaping reform outcomes, with the strongest performing systems (i.e. Denmark and the UK) potentially benefitting from a longer history of socialized medicine (see the World Health Organization's *Health Systems in Transition series*). This point about path dependency also applies to the variations in improvement that we observe between the UK and Ireland: two countries with similarly strong reforming profiles, but different subsequent outcomes. Thus, as per Kuhlmann (2006), future research should consider how the endogenous characteristics of the systems into which reforms are introduced interact with the interventions to influence performance to facilitate more in-depth consideration of the national contexts underpinning reform configurations and outcomes.

In summary, our study illustrates that simplistic accounts of the costs and benefits of NPM reforms are not able to capture the complex reform profiles within different countries or their varying impacts. Future research should therefore draw on the institutional and

configurational perspective we deploy here to understand the multiple ways in which NPM reforms might contribute to, or detract from, the achievement of policy-makers' strategic goals.

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**Table 1: Descriptive statistics**

	Mean	Min	Max	SD
ΔEfficiency	4.77	3.92	5.91	0.47
ΔEffectiveness	4.28	3.50	4.85	0.39
ΔEquity	4.35	3.67	4.79	0.28
Privatization	2.91	1.86	4.58	0.75
Consumerism	4.92	3.75	6.07	0.61
Performance management	5.18	3.58	6.54	0.83
Corporatization	3.58	1.65	5.64	0.96

**Table 2: Reform mean values, fuzzy membership scores and strong membership (by country)**

Country	Condition			
	Privatization	Consumerism	Performance management	Corporatization
UK	3.14, 0.60, 1	5.55, 0.88, 1	6.26, 0.94, 1	4.76, 0.91, 1
Germany	2.52, 0.20, 0	4.60, 0.26, 0	4.96, 0.39, 0	3.15, 0.30, 0
France	1.86, 0.03, 0	3.75, 0.03, 0	4.77, 0.29, 0	5.64, 0.98, 1
Spain	3.68, 0.85, 1	4.73, 0.34, 0	3.58, 0.02, 0	3.11, 0.28, 0
Italy	4.58, 0.98, 1	4.09, 0.07, 0	4.00, 0.06, 0	3.92, 0.65, 1
Estonia	1.93, 0.04, 0	5.31, 0.77, 1	5.55, 0.73, 1	4.21, 0.77, 1
Norway	2.60, 0.23, 0	4.79, 0.38, 0	4.95, 0.38, 0	3.61, 0.51, 1
The Netherlands	3.29, 0.69, 1	4.54, 0.22, 0	4.70, 0.26, 0	3.68, 0.55, 1
Hungary	1.88, 0.03, 0	5.37, 0.80, 1	4.52, 0.18, 0	1.65, 0.02, 0
Austria	2.79, 0.36, 0	5.20, 0.70, 1	5.60, 0.76, 1	4.13, 0.74, 1
Portugal	2.56, 0.21, 0	6.07, 0.98, 1	6.54, 0.97, 1	3.25, 0.34, 0
Ireland	3.19, 0.63, 1	5.11, 0.63, 1	5.16, 0.50, 1	3.89, 0.64, 1
Sweden	3.67, 0.85, 1	4.30, 0.12, 0	5.80, 0.84, 1	2.70, 0.15, 0
Denmark	3.09, 0.57, 1	5.45, 0.84, 1	6.09, 0.92, 1	2.45, 0.10, 0

**Table 3: Configurations and distribution of cases**

Configuration	Privatization	Consumerism	Performance management	Corporatization	N of cases	Cases with strong membership
1	0	0	0	0	1	Germany
2	0	0	0	1	2	France, Norway
3	0	0	±	0	0	
4	0	0	±	±	0	
5	0	1	0	0	1	Hungary
6	0	±	0	±	0	
7	0	1	1	0	1	Portugal
8	0	1	1	1	2	Austria, Estonia
9	1	0	0	0	1	Spain
10	1	0	0	1	2	Italy, Netherlands
11	1	0	1	0	1	Sweden
12	±	0	±	±	0	
13	±	±	0	0	0	
14	±	±	0	±	0	
15	1	1	1	0	1	Denmark
16	1	1	1	1	2	Ireland, UK

**Table 4: Consistency values for causal combinations present in the data**

Configuration	Raw Consistency Values					
	Strong $\Delta$ Efficiency	Weak $\Delta$ Efficiency	Strong $\Delta$ Effectiveness	Weak $\Delta$ Effectiveness	Strong $\Delta$ Equity	Weak $\Delta$ Equity
1	<b>0.849</b>	0.829	0.719	<b>0.866</b>	<b>0.893</b>	0.767
2	0.807	<b>0.904</b>	0.797	<b>0.829</b>	0.795	<b>0.884</b>
5	0.678	<b>0.940</b>	0.654	<b>0.897</b>	<b>0.925</b>	0.710
7	0.795	<b>0.839</b>	0.709	<b>0.824</b>	<b>0.853</b>	0.810
8	0.781	0.814	0.690	0.766	<b>0.848</b>	0.731
9	0.705	<b>0.938</b>	0.781	0.750	0.668	<b>0.990</b>
10	0.806	<b>0.831</b>	<b>0.915</b>	0.613	0.758	<b>0.890</b>
11	<b>0.833</b>	0.754	<b>0.917</b>	0.590	0.784	<b>0.846</b>
15	<b>0.957</b>	0.727	<b>0.881</b>	0.707	<b>0.954</b>	0.776
16	<b>0.965</b>	0.692	<b>0.860</b>	0.632	<b>0.868</b>	0.786
Consistency Threshold	0.830		0.80		0.82	
No.	4	5	4	4	6	4

**Table 5: Sufficiency analyses results (including complex and parsimonious solutions)**

Conditions	Strong $\Delta$ Efficiency			Weak $\Delta$ Efficiency			Strong $\Delta$ Effectiveness			Weak $\Delta$ Effectiveness		Strong $\Delta$ Equity		Weak $\Delta$ Equity	
	SEC1	SEC2	SEC3	WEC1	WEC2	WEC3	SFC1	SFC2	SFC3	WFC1	WFC2	SQC1	SQC2	WQC1	WQC2
<b>Complex Solution</b>															
Privatization	⊖	●	●		●	⊖	●	●	●	⊖	⊖	⊖			●
Consumerism	⊖		●	⊖	⊖	●	⊖		●	⊖	●		●	⊖	⊖
Performance management	⊖	●	●	⊖	⊖		⊖	●	●	⊖		⊖	●	⊖	
Corporatization	⊖	⊖		●		⊖	●	⊖			⊖	⊖		●	⊖
Configurations (new)	1	11, 15	15, 16	2, 10	9, 10	5, 7	10	11, 15	15, 16	1, 2	5, 7	1, 5	7, 8, 15, 16	2, 10	9, 11
Consistency	0.849	0.865	0.967	0.855	0.794	0.869	0.915	0.909	0.879	0.840	0.857	0.912	0.767	0.842	0.890
Raw Coverage	0.371	0.411	0.460	0.491	0.409	0.479	0.376	0.408	0.395	0.461	0.498	0.433	0.604	0.542	0.509
Unique Coverage	0.135	0.059	0.113	0.102	0.073	.201	0.153	0.097	0.091	0.162	0.200	0.150	0.320	0.162	0.119
Solution Consistency		0.858			0.819			0.839			0.836		0.780		0.807
Solution Coverage		0.658			0.767			0.754			0.592		0.753		0.671
<b>Parsimonious Solution</b>															
Configurations	1	11, 15, 16		2, 10	9, 10	5, 7	10	11, 15, 16		1, 2	5, 7	1, 5	7, 8, 15, 16	2, 19	9, 11
Consistency	0.860	0.891		0.831	0.778		0.892	0.902		0.863	0.863	0.848	0.740	0.840	0.783
Raw Coverage	0.404	0.524		0.496	0.436		0.507	0.502		0.557	0.607	0.546	0.692	0.562	0.558
Unique Coverage	0.148	0.269		0.106	0.099		0.170	0.165		0.096	0.146	0.094	0.239	0.162	0.157
Solution Consistency		0.860			0.810			0.815			0.847		0.751		0.915
Solution Coverage		0.672			0.797			0.821			0.703		0.786		0.671

## Figure 1: Steps in analysis

### Step 1: Data pre-processing

- Using the direct method, all condition (Figure 2) and outcome (Figure 3) variables were calibrated to form fuzzy membership scores (Figures A1 and A2) ranging from 0.0 to 1.0 (see Table 2 for calibrated variables).
- Threshold values used in calibrating each variable to membership of a set, e.g. displaying a considered condition or outcome, were empirically and qualitatively considered, and amended if required.
- Cases classified as members of a set, based on strong membership, were designated 1, with non-members designated 0 (Table 2), to establish observed configurations.

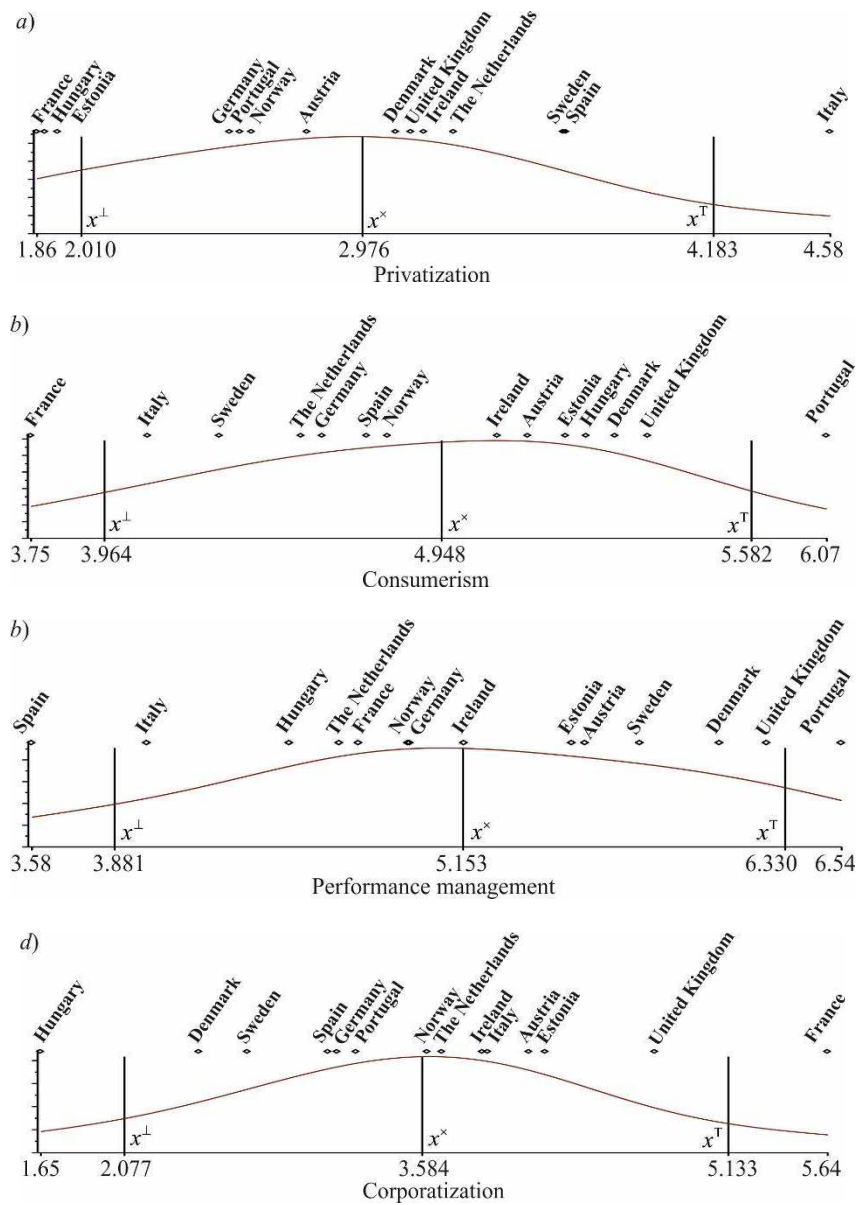
### Step 2: FsQCA analysis

- A truth table was constructed (Table 3), detailing cases with strong membership to configurations.
- Decision was made regarding treatment of remainders (unobserved configurations), and generation of complex and parsimonious solutions.
- Frequency threshold of 1 was employed for a logically possible configuration to be considered (Table 3).
- To ensure each configuration was only associated with a high *or* low outcome, raw consistency values were generated for configurations, with consistency threshold values applied for high/low levels of the outcome variables (Table 4).
- FsQCA necessity analysis was undertaken to identify condition attributes necessary for the outcome(s) of interest.
- FsQCA sufficiency analysis was undertaken (Table 5) to identify causal combinations of condition variables associated with outcome(s) of interest.

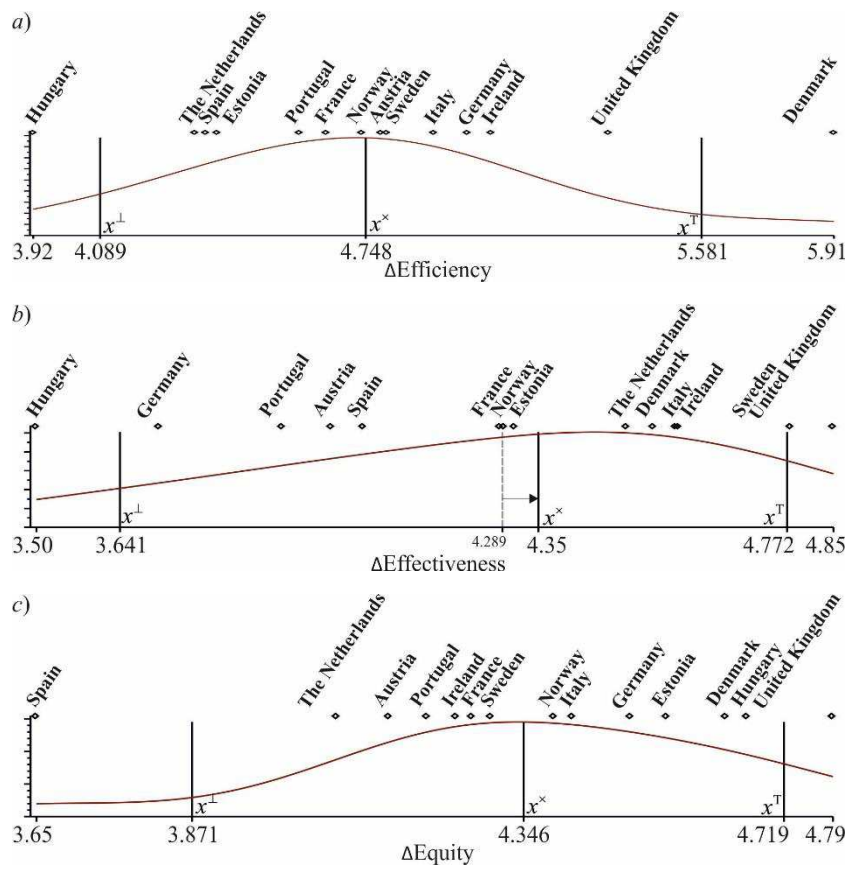
### Step 3: Interpretation

- The strength of the association between causal combinations and outcomes was examined, using consistency scores.
- The degree to which a causal combination accounted for instances of an outcome was considered, using coverage scores.
- Solution consistency and coverage were considered to take account of combined explanatory power of sets of causal combinations.
- Causal combinations associated with high and low outcome variables (efficiency, effectiveness, equity) were qualitatively interpreted.

**Figure 2: Condition variable pdfs with threshold values**

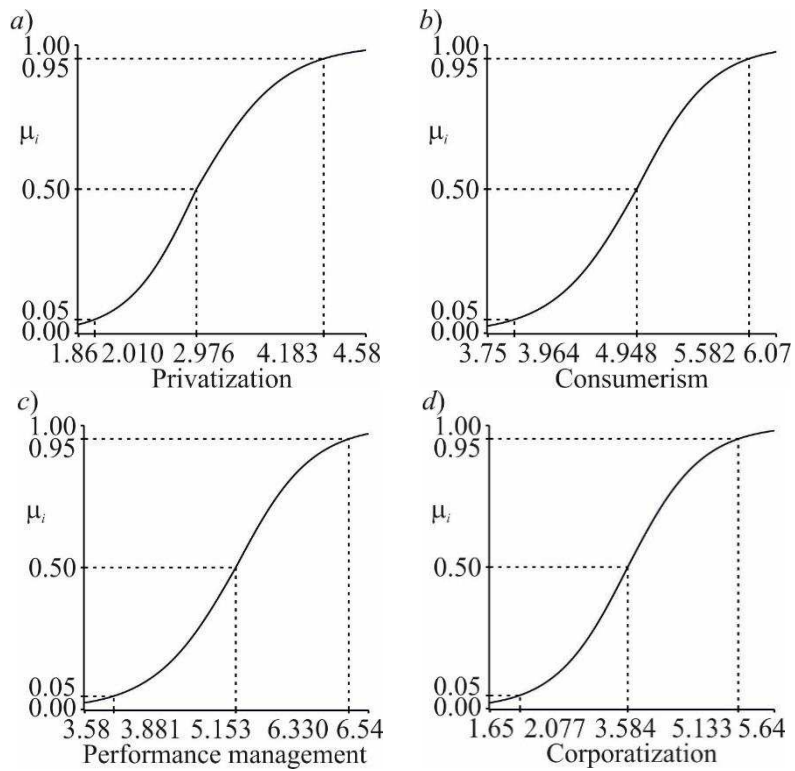


**Figure 3: Outcomes variable pdfs and threshold values**



## Appendix

**Figure A1: Condition variable membership score function graphs**



**Figure A2: Outcome variable membership score function graphs**

