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# The willing, the unwilling and the unable – explaining implementation of the EU Biofuels Directive

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**ABSTRACT** In this article we test current knowledge about policy implementation in multilevel governance systems and focus on the debated case of transport biofuels (EU Directive 2003/30/EC). We probe a set of hypotheses in a qualitative comparative analysis, offering a systematic comparison of 10 member states between 2003 and 2006. The findings show that implementation of the EU biofuels policy is a complex phenomenon where combinations of causal conditions, and not single conditions, produce the outcome. Implementation is more likely when three favourable conditions are present, when policy frames and content between EU and national levels match, when a consensual policy style is used and the most important actors are included. These findings are in agreement with previous studies. Non-implementation, on the other hand, is explained by a dichotomy between member states unable to implement because they lack capacity and those member states unwilling to implement even if they can.

**KEY WORDS** European Union; multilevel governance; qualitative comparative analysis.

In recent years we have witnessed a sharp expansion of interest in transport fuels produced from biomass – biofuels. This is driven by government targets for biofuels substitution, in turn driven by concerns about high oil prices, prospects for rural development and means to mitigate climate change. It is claimed that biofuels could ease these concerns and have a unique role to play in energy and transport policy of the European Union (EU). However, the introduction of these fuels requires sustained policy support and collaboration of and among numerous private and public actors, especially at a time when the merits of biofuels are contested in the public debate. Our concern here is limited to analysing the capacity of national policy systems to implement the EU biofuels policy in the face of the challenges of multilevel governance (MLG). The case of biofuels is a highly debated case that can promote our understanding of the problems that policies for sustainable transport, and specifically for alternative fuels, must confront to deliver their objective. In this study, our attention is on the EU Biofuels Directive[1] adopted in 2003, which requires member states to support consumption of minimum levels of biofuels – 2 per cent in 2005

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and 5.75 per cent in 2010.[2] This focus is motivated by the poor implementation results of most countries, despite record high oil prices and the impelling need of alternatives to oil-based, carbon-emitting fuels.[3]

EU level initiatives, like the Biofuels Directive, are just the starting point for changed practices. Compliance by governments and implementation at the national level follow. These processes are intricate and complicated processes in a policy context characterized as MLG (Marks *et al.* 1996). Whether the Biofuels Directive is going to work as intended depends on its success in the MLG process from the EU level to the producer and local consumer through national policy action. This article engages with the scholarly literature on MLG that has generated theories to explain implementation in the relation between EU and national political systems. Various factors are held to make implementation of EU policies more or less likely to occur, and our aim is to test these theories. We employ qualitative comparative analysis (QCA) based on Boolean algebra to test hypotheses of policy implementation cross-nationally on a sample of empirical cases, namely 10 member states.

## RESEARCH APPROACH – QUALITATIVE COMPARATIVE ANALYSIS

The research approach employed in this paper, qualitative comparative analysis (Ragin 1987, 1994), was developed in the field of comparative politics. Based on Boolean algebra, QCA has been praised for its capacity to analyse complex causation – a situation where a given outcome may follow from several different combinations of causal conditions (Rihoux and Ragin 2004). The strength of the approach is its aim to consider each case in its complexity while at the same time allowing researchers to consider more cases and make generalizations possible (Rihoux 2003). We employ QCA in our study to test existing theories about policy implementation in MLG systems.

The QCA approach is not without problems. One major problem in the *Crisp Sets* configuration of QCA (Ragin 1994) employed in this study stems from the conversion of continuous variables into dichotomous ones.[4] The researcher must assume the existence of a threshold in the relation between conditions and outcomes, with no possibility of examining the proportional relationship between variables (Schneider and Wagemann 2007). Further problems rise from the contradictions–uniqueness trade off. If too many variables are included, a problem of uniqueness might occur. Each case is then simply described as a distinct configuration of variables, which result in full complexity and no parsimony. On the other hand, if too few variables are employed, the probability of contradictions increases (Varone *et al.* 2006). An issue that has produced much discussion among scholars is how to treat logically possible, but non-observed combinations, or logical reminders. The epistemological issue at stake here is once again the arbitration between parsimony and complexity, or rather the level of reduction of complexity at which one should aim.

As illustrated in the following, we solve this puzzle employing counterfactual analysis (Ragin and Sonnett 2004).

The empirical material used in this study includes country reports (EC 2009), national and comparative studies, and official statistics as well as 14 interviews with actors involved in the policy process such as government officials, economic operators and societal actors. The function of semi-structured interviews is to collect evidence of the presence or absence of each condition included in the causal model.

### Case sample and time period selection

In any comparative research effort, one is confronted with the classical research design question of how to select genuinely comparable cases. When selecting the sample of countries to be used in our study we should remember that there is no procedural limit on the number of cases that can be studied using QCA. Limits are set by the researcher's tolerance for complexity and degree of interest in maintaining familiarity with each case (Rihoux and Ragin 2004). With this in mind, we select cases in a way that allows us to eliminate factors that are not linked to an identical outcome. This strategy for case selection, 'the most dissimilar case sampling' (Henry 1990: 20) seeks maximal cases heterogeneity and increases the possibility of generalizations. Based on this strategy, we select 10 member states: Austria; Denmark; France; Germany; Italy; Latvia; Poland; Slovenia; Spain; and Sweden. This group is considered a representative sample of member states with variation regarding EU membership time, size of motor fuels market, geographic location, state organization, and level of biofuels consumption. The empirical cases cover a time span from 2003, the year of adoption of the Biofuels Directive, to 2006. We select this short time frame although we recognize it could exacerbate lead-time problems. After all, these are the terms of reference to which national governments agreed in 2003.

In QCA studies the term *causal conditions* is used generally to refer to an aspect of a case that is relevant for the explanation of some outcome exhibited by the case. QCA studies show a broad variation as to the number of conditions included in the analysis. In an attempt to keep a balance between parsimony and complexity, we select five conditions that result in a set of 32 logical causal combinations.[5] The five conditions are derived from the literature on policy implementation in MLG and are used to create a set of hypotheses that can be tested cross nationally by the model.

## IMPLEMENTATION IN MULTILEVEL GOVERNANCE – FIVE CONDITIONS

A challenge in comparative research is variable selection. We motivate our selection of variables owing to a specific interest in MLG. This delimitation excludes a whole literature on implementation in policy studies, public management and administration, interesting if we were to explore implementation within

domestic politics. That literature does not discuss conditions that look at the relationship between EU level and member states in a comparative perspective (Knill 2001: 18). Since we are interested in implementation problems that arise specifically in the intersection between the national and EU levels, we use variables derived from the MLG literature. Many MLG scholars – among them Heritier *et al.* (1996), Knill (1998) and Börzel (1999) – have argued that implementation problems arise when states are expected to do what they cannot or do not want to do. At the same time, and evident from the same literature, under certain conditions institutions do adopt new policies and change.

In a comparative study of 10 European countries' environmental policy implementation, Jordan and Liefferink (2004: 231) pinpoint factors related to how the EU transforms domestic policy. Their study does not establish clear causalities, i.e., what specific domestic changes are due to MLG, but points to aspects worthy of a closer look. Differences between EU-level directives and the member state context regarding aspects like policy content, policy style and policy structures lead to *misfits* (Liefferink and Jordan 2004: 20–5). When there are misfits, national institutions are pressured to change policy, adopt policy styles and structures in a way they would not if these aspects matched. Consequently, member states act differently in response to the one and same EU policy. Some member states resist, others absorb the EU policy, while some transform policies, styles and structures. 'Misfit' has become a powerful explanation for implementation failure of EU policies (Börzel 2003; Falkner *et al.* 2005; Green Cowles *et al.* 2001; Mastenbroek and Van Keulen 2005). The misfit hypothesis has a top-down approach to the effects of EU at the national level (even if it is resistance and non-action). The process is likely to be far more dynamic (Bomberg and Peterson 2000; Goetz 2002; van der Vleuten 2007), but our conceptual framework cannot take such dynamics into account. We simply focus on conditions at the national level of the 10 member states of the study. As a way to include more complexity while avoiding compromising the general explanatory potential of the work, we include factors that are related to how implementation is carried out within the domestic governance system and have shown to be relevant for compliance and implementation. In the following, we present the theoretical background for the variables used in the comparative study.

## Condition 1: misfits in policy framing and policy content

Liebert (2003a) views the EU governance process as being about creating shared 'frames of references by framing common sets of beliefs and ideas, and creating common frameworks' (Liebert 2003b: 15). Liebert's study on EU equality norms showed how 'frame misfit' caused implementation problems for equality directives. Heritier and Knill (2001) also argued that how 'transport' was framed in the EU explained why member states have diverged considerably in responding to, for example, EU Road Haulage Policy and Railways Policy. The EU framing of biofuels is that these fuels have a significant potential to

reduce transport-induced impacts on the environment (specifically on the climate). Biofuels can promote a secure transport system (with reference to its energy supply) and, at the same time, contribute to economic development and employment in rural areas (EC 2006). Member states, on the other hand, feature country-specific frames in some cases in harsh disagreement with the EU.

Jordan and Liefferink write that the most significant changes in the 10 member states they studied had to do with changes in policy content due to the misfits between EU-level and national-level policy goals (Jordan and Liefferink 2004: 224). In our model, we define policy content as the overall goal of the policy, either the one stated in the policy documents or the one that has motivated the adoption of specific policy instruments and measures, in case differing from the one officially stated. The content of national policies can therefore be alternatively biofuels consumption, or production. While policy framing and policy content in theory do not have to match, all countries in our sample scored identically on framing and on content. With this in mind, we build a common hypothesis that brings together these two closely related issues, policy framing and content: *the matching of policy framing and policy contents at EU and national level improves the feasibility of policy implementation.*

## Condition 2: policy style

The concept of policy style is about member state's approach to problem-solving with particular focus on standardized procedures for decision-making and implementation. Richardson *et al.* (1982) suggest two dimensions in which policy style can be studied: one ranges from anticipatory to reactive policy style; and the other from consensual to adversarial. Jordan and Liefferink (2004) show the relevance of the second dimension and Dryzek *et al.* (2003) also highlight the importance of patterns of inclusion and exclusion in governments' approaches to problem-solving. In the literature, this is often connected to problems of governance deficits and implementation gaps (Haas 2004; Scharpf 2001) where improvements in implementation are believed to benefit from more inclusive governance forms (Bäckstrand *et al.* 2010; Durand *et al.* 2004; Smith 2003). We have chosen to focus on the government's relationship to other actors in the policy process, which ranges from consensual to adversarial, as our variable because of the specific features of the biofuel case.

A government that wants to promote biofuels consumption has to persuade numerous actors, often having different agendas and interests, to collaborate. First, biofuels need to be produced and this requires the involvement of farmers and industry. Alternatively, biofuels can be imported, but this implies that suiquantities are available on the international market. Following production, biofuels need to be delivered to consumers, and fuel distributors are the actors with the infrastructure and know-how to do so. However, consumers cannot use biofuels if engines and vehicles are not made compatible with the characteristics of these fuels. Finally, consumers' motivation to purchase

biofuels is influenced by environmental–social movements and consumer organizations, and their co-operation is also important. Our hypothesis is that *a consensual policy style during the policy-making phase improves the feasibility of policy implementation.*

### Condition 3: role of veto players

Some MLG researchers have taken a more actor-oriented perspective and argued that the role of domestic actors' views is highly relevant for implementation. Difficulty in implementation occurs because actors have different visions or preferences as to how they want to reform policy (Dimitrova and Steunenberg 2000). Veto players are actors whose agreement is required to change the status quo (Tsebelis 1995). Such actors can be part of the government administrative structure or part of the societal sector. Veto positions can also arise between different jurisdictional levels in the administrative system, as Steunenberg (2006) argues; thus, an important question is to find who the relevant national actors are. Veto players can be formal, institutional actors or more informal, political actors.

Veto players are those actors whose agreement is required to change the status quo – see also Tsebelis (1995). They influence the process of implementation of a policy and can stop (or veto) it if it is not in accordance with their will or interest. In each empirical case, we looked for veto players among five categories of social and economic actors: farmers; biofuels producers; car producers; fuel distributors; and environmental and consumer organizations. Our hypothesis is that *the inclusion of veto players' position and interests into the national policy improves the feasibility of implementation.*

### Condition 4: government's administrative organisation

Administrative organizations have a tendency to deal with problems by disassembling them into manageable units with a tendency to break down problems into sectors and subsectors (Dryzek 1997; Torgerson 1990). It has even been argued that the 'rationale' for the modern organization is differentiation and division of labour (Clegg 1990; Styhre 2002: 166–79). This division of responsibility gives a specific sector the authority to act in that issue area. We suggest that the way policy responsibility is allocated is another important variable in the search for implementation failure or success. In order to be able to study this factor, it needs to be simplified and operationalized. This means that many potential variables such as the administrations' struggles with multiple issues, competing priorities and interacting issues have to be excluded. We think that the key issue is whether authority around the biofuels issue is concentrated or dispersed. The likelihood that agreement is reached on an issue increases if authority is concentrated in one administrative sector. Our hypothesis is that *when the authority and responsibility for biofuels policy rest on a specific governmental sector the feasibility of implementation improves.*

**Condition 5: reform capacity**

Börzel (2002) contends that it takes resources to implement and that member states that are better off economically also have the resources required to implement policies. Typically, mismatches inflict significant demands and costs on implementation structures. In general, the costs are noticeable and, thus, the better the 'fit' the lower the costs of adaptation (Börzel 2002). Accordingly, member states' failure to comply is not necessarily intentional, but could originate in a lack of capacity to act. Tallberg (2002) presents three types of reform capacity: political; administrative; and economic. Political capacity is lacking if governments are unable to govern administrative and private actors, hence they lack power to enforce compliance. Tallberg writes that the division of power within governments, or between different jurisdictions can reduce political capacity (2002: 58). We do not treat political reform capacity as a specific variable but we consider it in the selection of empirical cases and include federal as well as centralized states, and presidential as well as parliamentary systems. Tallberg (2002) also points to problems of implementation related to lack of administrative capacity, and includes access to expertise, personnel and institutional resources. This is intimately related to economic reform capacity. Economic resources are required to equip the administrative institutions with expertise, personnel and the institutional infrastructure needed for implementation.

We consider the availability of economic resources as a measure of country's reform capacity. Policy support for biofuels, i.e., tax incentives and subsidies, also requires substantial economic resources. In a multilevel policy system, the availability of resources is crucial, since policy is developed and adopted at a level of government neither responsible for implementation nor for the necessary resources. Hence, limited availability of economic resources in the national budget can create problems for implementation. The hypothesis we develop is that *the availability at national level of economic resources to be diverted or channelled into the implementation phase improves the feasibility of policy implementation.*

The five hypotheses are summarized and specified below, tested on the empirical cases and the results are displayed in Table 1.

*Hypothesis 1: (F) The matching of policy framing and policy contents at EU and national level improves the feasibility of policy implementation.*

This hypothesis is demonstrated when the national policy (1) shares each and every element of the EU framing (climate protection, security of energy supply and rural development) and, (2) at the same time aims at biofuels consumption, formally and in practice. We do not investigate the relative position of different policy objectives, although we are aware that certain objectives might have greater relevance domestically even when the EU framing is fully recognized, and that in turn could influence the results of the implementation process.

*Table 1* Raw table

| | *Condition* | | | | | |
|---|---|---|---|---|---|---|
| *Country* | *Framing and content (F)* | *Policy style (S)* | *Veto players (V)* | *Government structure (G)* | *Reform capacity (R)* | *Biofuels share 2005–2006 (I)* |
| Austria | Yes | Yes | Yes | Yes | Yes | 3.20–3.54 |
| Denmark | No | Yes | Yes | Yes | Yes | 0.00–0.15 |
| France | Yes | Yes | No | No | No | 1.00–1.77 |
| Germany | Yes | Yes | Yes | Yes | No | 3.75–6.30 |
| Italy | Yes | No | No | No | No | 0.51–0.46 |
| Latvia | No | No | Yes | No | Yes | 0.33–0.22 |
| Poland | No | No | Yes | No | No | 0.48–0.92 |
| Slovenia | No | Yes | Yes | Yes | Yes | 0.35–0.27 |
| Spain | Yes | No | No | Yes | Yes | 0.44–0.50 |
| Sweden | Yes | Yes | Yes | No | Yes | 2.20–3.10 |

*Hypothesis 2: (S) A consensual policy style during the policy-making phase improves the feasibility of policy implementation.*

We evaluate government policy style on the existence of procedures for actors' participation in the policy-making process. We identify five categories of actors and decide that the policy style is consensual when formal procedures are in place to ensure the participation of all categories. What we want to assess here is whether all categories of actors had access to the policy-making process, and not whether category specific interests, or views were included in the national policy, since that is the objective of Condition 3 above.

*Hypothesis 3: (V) The inclusion of veto players' positions and interests into the national policy improves the feasibility of implementation.*

To be able to verify the hypothesis, we assume that interests and positions of veto players are included into the national policy when, looking at the specific circumstances of each empirical case, we see that veto players have not opposed the policy measures or the expected policy results.

*Hypothesis 4: (G) When the authority and responsibility for biofuels policy rest on a specific governmental sector the feasibility of implementation improves.*

We assume the existence of a concentrated authority when final decisions about policy proposals and administrative regulations are taken by one clearly identified governmental subject. Although it might be relevant, we do not consider what type of subject this authority has or whether consultations with other actors are required.

*Hypothesis 5: (R) The availability at national level of economic resources to be diverted or channelled into the implementation phase improves the feasibility of policy implementation.*

We select member states' national budget, measured in percentage of gross domestic product, as a measure of resource availability, and assume that member states do not have available economic resources to support implementation when the national budget shows annual deficits above 3 per cent between 2003 and 2006.[6]

## ANALYSIS

In this study, policy implementation is interpreted as the achievement of the referential consumption targets established by the EU Directive. This focus can be criticized since EU directives bind member states to policy objectives while normally leaving them free to choose the most appropriate means and instruments to achieve the objectives. In the case at hand, biofuels consumption is a means to achieve energy, climate and rural development objectives, and not a policy objective itself. However, the way the Directive is formulated clearly puts the achievement of the referential consumption targets at the core of any result-oriented evaluation of its implementation.

The QCA approach models the feasibility of policy implementation as a function of five independent conditions representing the following expression:

$$I = f(F, S, V, G, R)$$

Where: I is the achievement of the Directive's targets; F is the matching of policy framing and content at EU and national level; S is the existence of a consensual policy style at national level; V is the inclusion of veto players' position and interests into the national policy; G is the existence of a concentrated form of authority within the government; R is the presence of national reform capacity.

QCA requires the construction of a truth table (Table 2) that displays all observed combinations of conditions. They are coded either to indicate the presence (upper case letter) or the absence (lower case letter) of the causal factor. The truth table is used to evaluate propositions about necessary and sufficient conditions for the phenomenon under study.

The process of minimization imitates the logic behind experimental research (Ragin 1987). The initial list of configurations with a given outcome is minimized to reach the most general formulation of sufficient conditions compatible with the cases under study. For instance, in Table 2, France and Italy are alike in each respect except for policy style. Holding constant all the other four factors, only policy style differs, and yet the Directive was not implemented. Therefore, in the comparison of the two countries, policy style can be considered irrelevant to the outcome of non-implementation. With this in mind, we observe the sample of cases and find only nine combinations of causal conditions, three

*Table 2* Truth table: Boolean analysis of the implementation of the Biofuels Directive in the 10 member states

| *Country* | *Configuration* | *Outcome* |
|---|---|---|
| Austria | F S V G R | Yes |
| Denmark | f S V G R | No |
| France | F S v g r | No |
| Germany | F S V G r | Yes |
| Italy | F s v g r | No |
| Latvia | f s V g R | No |
| Poland | f s V g r | No |
| Slovenia | f S V G R | No |
| Spain | F s v G R | No |
| Sweden | F S V g R | Yes |

of positive outcomes (Yes), and six of negative outcomes (No). To note that the 23 logical possible combinations, for which no empirical cases are observed, logical reminders, are not displayed in Table 2. Inspired by Ragin and Sonnet (2004) we decided to employ *counterfactual analysis* to deal with logical reminders and obtain an optimal solution between complexity and parsimony.

The overall objective of this study is to understand and explain the impact of MLG on the possibility to implement policy. The concept of asymmetric causality (Lieberson 1985) is of importance here. Many social phenomena are the results of asymmetric causality which means that the explanation of the presence of the phenomenon does not imply that the explanation automatically accounts for the absence of the same phenomenon. Hence, it is important to study implementation as well as non-implementation of the EU policy.

## Explaining policy implementation

In this section, we observe the cases associated with a positive outcome. The equation below shows the configurations from Table 2 associated with a positive outcome. A first observation is that the number and variety of combinations support the idea that in social reality there is usually more than one causal pattern to a given outcome.

$$\mathrm{FSVGR} + \mathrm{FSVGr} + \mathrm{FSVgR} => \mathrm{I}$$

These configurations are the departing point of the minimization process which starts with the identification of the extremes of the solution continuum. On one end, the most conservative solution *(i)* is revealed by using only the observed configurations and treating the 23 logical reminders as instances of a negative

outcome. On the other end, the most parsimonious solution *(ii)* is displayed by incorporating the logical reminders that yield a simpler solution. Here a reminder can be treated as instance of positive as well as negative outcome, if doing so results in a simpler solution. Note that the plausibility of their inclusion is not evaluated at this stage.


In the next step, employing the principles of counterfactual analysis we look for an intermediate solution that compromises between the two extremes. Here we remove causal conditions from *(i)* that are inconsistent with existing theoretical and substantive knowledge. In our data set this process does not yield a simpler solution due to a lack of 'easy' counterfactuals.[7] Hence, we employ the most complex solution *(i)*:

$$FSV(G + R) => I$$

An observation of this formula reveals that none of the factors can individually explain the implementation of the Directive. However, three factors (F, S and V) are found in all cases and are thus necessary conditions.

In the following, the minimal formula is used to understand and explain the empirical cases. This exercise brings insights on the cases and allows us to elaborate on the explanatory power of what we see. The minimal formula displays two configurations of conditions. The first (FSVG) combines concentrated authority within the government (G) with the three necessary conditions (S, F and V) and covers the cases of Austria and Germany. The second (FSVR) illustrates the importance of reform capacity (R) in combination with the three necessary conditions, and it is displayed by Austria and Sweden.

In Austria, the only country where all the causal conditions were present, a significant step towards the EU target was taken in October 2005 with the introduction of an obligation system rapidly pushing domestic consumption up from 0.9 per cent to 3.5 per cent. The obligation system was not introduced for budget concerns, as in many other member states, but to induce veto players (oil distributors in this case) to co-operate despite unattractive biofuels prices on the national market. In Sweden and Germany, national governments did not have to confront the opposition of economic and social actors, since transport biofuels and the EU policy were largely supported. The three countries of this group agreed with the EU ideas and beliefs on biofuels, although we see different combination of elements prioritized by each country i.e., climate protection and energy security in Sweden, rural development and climate change in Austria. In Germany all three factors were equally important. In a similar way, public participation in these countries was ensured through a formal process of public consultation.

Differences between these cases appear when we move away from the necessary conditions. The presence of reform capacity in the form of available economic resources did not play an important role in Austria. Informants from the ministry of agriculture, forestry, environment and water management pointed to the advantage of concentrating authority in one single ministry that defines and implements policy, whereas they did not mention the availability of economic resources (Bach 2007). The cases of Germany and Sweden show that concentrated administrative authority and existence of reform capacity played a minimal role in the presence of the three necessary conditions. In Germany, where the ministry for environment, nature conservation and nuclear safety has exclusive authority on the issue of biofuels, the lack of reform capacity did not limit the amount of resources available for biofuels policy, in the range of hundreds of million euros. However, this did not guarantee complete immunity from budget constraints which caused drastic reductions of tax incentives from 2007 (EC 2009). In Sweden, the lack of concentrated government authority – policy implementation required the co-operation between six ministries plus the prime minister's office – was not mentioned as a problem in formulating and implementing national policy.

In agreement with previous studies on policy implementation, we observed that it is the presence of causal conditions, and not their absence, that favoured policy implementation. Three conditions (F, S and V) appear necessary for policy implementation. The internal structure of the government and the availability of economic resources had little influence on implementation in the presence of those necessary conditions.

## Explaining non-implementation

In this section, the focus is on non-implementation. As motivated above, it is important for the overall aim of this study to explore also the negative outcome. As in the previous subsection, the minimization process starts with the identification of the extremes of the solution continuum: the most conservative *(i)* is obtained by treating all logical reminders as instances of the positive outcome, while the most parsimonious solution *(ii)* by including the reminders that yield a simpler solution without evaluating their plausibility.

$$\underrightarrow{\text{Fvgr} + \text{fsVg} + \text{FsvGR} + \text{fSVGR}\ (i) \quad \text{f} + \text{v}\ (ii)}$$

To obtain an optimal intermediate solution between these two extremes we remove from the most complex solution *(i)* all causal conditions inconsistent with theoretical and substantive knowledge – 'easy' counterfactuals. For instance, condition 'F' can be removed because there is every reason to expect that mismatching policy frames and content 'f' should contribute to non-implementation under these conditions. In a similar way, we drop 'V' because lack of veto players' support 'v' is expected to contribute to

non-implementation, and also 'R' and 'G' can be removed since lack of reform capacity 'r' and disperse form of authority within the government 'g' should also increase the prospects of non-implementation under these conditions. However, policy style 'S' cannot be treated the same way. Existing knowledge supports the idea that a co-operative policy style benefits policy implementation, but we do not find evidence that an adversarial style, and thus a lack of actors' participation, does foster non-implementation. This situation is typical of certain policy fields, i.e., foreign and security policy, where effective implementation is vital and achieved without or with very limited participation of social and economic actors. For these reasons we consider 'S' a 'difficult' counterfactual that should not be removed.

The product of counterfactual analysis can be described as:

$$v\ (rg + s) + f\ (sg + S) => i$$

This intermediate solution is optimal because it strikes a balance between complexity and parsimony. It includes the most complex solution *(i)* as well as the most parsimonious *(ii)*.

The minimal formula reveals two pathways of non-implementation. The first is characterized by the role of veto players and shows two configurations. The first configuration (vrg) combines lack of veto players' support (v) with lack of reform capacity (r) and disperse government authority (g). This configuration covers the cases of France and Italy. In France veto players had an important role in the implementation process, where they placed significant limits on policy-makers striving to formulate a suitable policy strategy. The government brought the veto players (fuels distributors, car producers and farmers' organisations) to agree to an ambitious policy plan only in November 2005 (EC 2009). However, the EU targets were not achieved in 2006 owing to the disagreement of the ministry of economy and the ministry of agriculture on the financial coverage of the newly adopted national plan. Budget concerns, aggravated by weak administrative co-ordination, were at the root of the problem in France.

In the second configuration (vs), non-implementation is described as the product of veto players' opposition (v) combined with an adversarial policy style (s). This illustrates the cases of Italy and Spain. As in France, in Italy the government experienced the opposition of veto players. Informants from the government told us that powerful oil companies had no interest in biofuels and opposed their introduction (Marconi 2007). Not even the introduction of an obligation system in 2006, partly motivated by the need to increase consumption levels without increasing public expenditures (r), eased the opposition of oil companies. The opposition of veto players (v) was crucial also in Spain. Oil companies and car producers did not show interest in biofuels until late 2006 and as a result most of the national production was exported. Finally, lack of a consensual policy style was also an important factor both in Italy and in Spain. Not all categories of interested actors had guaranteed access to

the policy-making process and participation was left to the sensitivity of each forum and to the influence of single actors (Marconi 2007, Sanchez 2008).

The second pathway is characterized by mismatching policy framing and content (f). As discussed at length below, this feature deeply distinguishes these cases from the previous. In the configuration (fsg), mismatching policy framing and content (f) are combined with adversarial policy style (s) and dispersed authority (g). Latvia and Poland are covered by this configuration. Although both countries formally agree with the EU framing on biofuels, the policy instruments and measures employed reveal inconsistent intentions. According to the Latvian government, 'the aim of the national biofuels policy is to promote national production' (Rudzite 2008). As a result, 70 per cent of the national production was exported in 2006 (EC 2009). The Polish government is more moderate and stresses the importance of both national production and consumption. Yet, exports were abundant in the period under consideration (EC 2009). Moreover, we observe limited participation of social and economic actors in the two member states with a traditionally closed and hierarchical policy system. Our interviews show that only car producers, fuel distributors and biofuels producers were regularly invited to ministerial meetings in Latvia, although their right to participate was not formalized (Rudzite 2008). Furthermore, the number of administrative sectors involved in the policy process is important. In Latvia, the leading role of the ministry of economics, responsible for law proposals and conformity assessments, was challenged by the agricultural ministry, responsible for support mechanisms for raw materials, and by the ministries of environment and transport dealing with the implementation of specific measures. In Poland, the ministry of economy co-ordinates the work on policy and market development, but being the 'great co-ordinator' (Kucharsky 2008) did not exclude the eventuality of harsh disagreements, especially with the agricultural ministry.

The last configuration (fS) is the most puzzling. It consists of unfavourable and surprisingly favourable conditions for policy implementation. It is characterized by a mismatch of policy framing and content (f) combined with consensual policy style (S). Denmark and Slovenia show this configuration, although they differ in the details of policy framing and content. In Denmark, the mismatch illustrates disagreement with EU ideas on biofuels, whereas the Slovenian government, more subtly, questions the suitability of consumption targets to achieve the policy objectives. Consensual policy style is also among the causal conditions of the negative outcome in these cases. Participation in the policy-making process was ensured and recognized to all categories of actors in these national systems. As the reader may note, this was pointed out as one of the three necessary conditions for implementation. Surprisingly, the presence of consensual policy style is here also a causal factor of non-implementation. In the literature on governance it is claimed that broad participation promotes good governance, effective policy formulation and implementation (Weiss 2005). Yet, in the case of biofuels policy the model indicates that broad actors' participation, not supported by matching policy framing and content,

has promoted non-implementation. On the other hand, detailed analysis of the evidence from the empirical cases shows that actors' participation should not be interpreted in terms of causality, but simply as a co-occurrence of the negative outcome.

In sum, the minimal formula here described highlights two contrasting pathways of non-implementation of the Biofuels Directive, one characterized by the opposition of veto players (v), the other by mismatching policy framing and content (f). Where the opposition of veto players indicates some sort of incapacity of the national system, mismatching policy framing and content highlights member states' unwillingness to comply. This is a crucial difference that deserves further attention. However, these two conditions proved able to produce a negative outcome only in combination with other conditions as shown in the solution. It is important to stress here that QCA is a configurational method that rests on the assumption that the interplay between single conditions explains the outcome, not single conditions in isolation (Schneider and Wegemann 2007). In general terms, the solution here described is only partially in agreement with the literature reviewed. The total number of absent causal conditions (18) is close to the number of present conditions (17). At country level, non-implementation mostly appears in cases with a majority of absent conditions, but Denmark and Slovenia represent two important exceptions.

## CONCLUSIONS

In this paper, theories on policy implementation in a MLG system were tested cross-nationally on a sample of EU countries. Through QCA, a suitable methodology for this type of study, we moved a first step towards generalisation because it allowed us to go from asking 'what made this one country to implement?' to asking 'what made this type of policy system implement?' hence, moving from individual member states to configurations of conditions. MLG theory generated five different hypotheses on specific conditions that affect the process and the outcomes of policy implementation and were tested on the case of biofuels. The analysis revealed that implementation is more likely when such conditions are present. The EU biofuel targets were achieved in policy systems showing matching policy framing and content, employing a consensual policy style and including veto players. These findings single out three variables that together provide the necessary conditions for implementation, yet none of the conditions considered individually is sufficient to explain the outcomes. The lack of concentrated authority and of reform capacity appears less important. Administrative organizations can be effective despite dispersed authority, as proved by the case of Sweden, whereas prioritization of the biofuel issue can ensure that the necessary resources to reform are made available, as shown by the case of Germany.

While the model shows that the presence of factors related to MLG promotes policy implementation, as argued in the literature, it displays that the absence of

those very same factors fails to account for non-implementation. Indeed, the study of non-implementation gives the most interesting and even perplexing results in this study. Three pathways describe the negative outcome: the willing (but unable); the unwilling; and the unable. The first shows how the incapacity to control actors and/or processes can affect implementation results. Here, combinations of problems with administrative co-ordination, actors' involvement and collaboration, and reform capacity make compliance difficult, despite the government's willingness to implement. The second pathway points to the opposite instance where the negative outcome is caused by disagreement with the EU policy in policy systems able to control actors and steer processes. This finding shows that the risk of opposition at national level is intrinsic in a multilevel policy system. Policies formulated in Brussels are brought to national governments to be implemented in spite of national beliefs, ideas and priorities. The lack of willingness to implement, such as in Denmark and Slovenia, is a factor that can make even the fittest national system fail. The last pathway shows, unsurprisingly, that unwillingness to implement together with poor capacity to control actors and processes does not improve outcomes.

The analysis revealed that the case of biofuels policy follows the principles of asymmetric causality and confirms that the implementation of biofuels policies is a complex phenomenon where a variety of factors in combination shape outcomes. It suggests that efforts to improve performance at EU level should consider the type of combinations that cause non-compliance. In the case of biofuel policy there is no 'one case fits all' solution, so that unwillingness to implement should be treated differently from incapacity to do so. However, practical application of this finding requires further research.

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## NOTES

1 Directive 2003/30/EC of the European Parliament and the EU Council on the promotion of the use of biofuels and other renewable fuels for transport (OJ L 123 17 May 2003, pp. 42–46).
2 Targets are referential and lower values are allowed if appropriate justifications are presented to the European Commission.

3 EU consumption of biofuels reached 1 per cent in 2005 and 1.8 per cent in 2006 against reference values of 2 per cent and 2.75 per cent (EC 2009).
4 Since none of the conditions selected in this study is fundamentally non-dichotomous, we prefer the more inductive *Crisp Sets* version of QCA over the *Fuzzy Sets* QCA – see more on Fuzzy-set QCA in Ragin (2000).
5 The number of causal combinations produced is a geometric function of the number of conditions (number of causal combinations $= 2^k$, where $k$ is the number of causal conditions).
6 The 3 per cent limit is a well-known reference value employed in the Eurozone area to limit public expenditures (Council of the European Union, OJ C 236, 2 August 1997, pp. 1–2).
7 Easy counterfactuals are redundant conditions inconsistent with existing theoretical or empirical knowledge. They are redundant because the same outcome is expected when the condition is changed from absent to present, and vice versa.

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