

Social Network Analysis and Qualitative Comparative Analysis: Their mutual benefit for the explanation of policy network structures

Manuel Fischer^a

^aUniversity of Geneva, Switzerland¹

Abstract

By switching the level of analysis and aggregating data from the micro-level of individual cases to the macro-level, quantitative data can be analysed within a more **case-based approach**. This paper presents such an approach in two steps: In a first step, it discusses the combination of Social Network Analysis (SNA) and Qualitative Comparative Analysis (QCA) in a sequential mixed-methods research design. **In such a design, quantitative social network data on individual cases and their relations at the micro-level are used to describe the structure of the network that these cases constitute at the macro-level. Different network structures can then be compared by QCA.** This strategy allows adding an element of potential causal explanation to SNA, while SNA-indicators allow for a systematic description of the cases to be compared by QCA. Because mixing methods can be a promising, but also a risky endeavour, the methodological part also discusses the possibility **that underlying assumptions of both methods could clash**. In a second step, the research design presented beforehand is applied to an empirical study of policy network structures in Swiss politics. Through a comparison of 11 policy networks, causal paths that lead to a conflictual or consensual policy network structure are identified and discussed. The analysis reveals that different theoretical factors matter and that multiple conjunctural causation is at work. Based on both the methodological discussion and the empirical application, it appears that a combination of SNA and QCA can represent a helpful methodological design for social science research and a possibility of using quantitative data with a more case-based approach.

Keywords: Mixed methods, Social Network Analysis, Qualitative Comparative Analysis, policy networks, conflict structure, Switzerland

Introduction

This paper presents one way of using quantitative data in the framework of a case-based approach to study social science phenomena. It does, however, not directly apply a case-based approach for analysing quantitative data.² I argue that such a direct application of a case-based method to cases stemming from a quantitative, large-N dataset is a difficult task because case-based approaches often require in-depth case knowledge and a certain amount of qualitative information on each case and its context. Because the focus of quantitative, variable-based data is per definition not on individual cases, the researcher usually lacks such detailed case knowledge. **A direct application of a case-based approach to quantitative data would thus most probably require the further gathering of in-depth knowledge by studying documents or carrying out interviews to learn more about the particular cases one wants to study (see Lieberman 2005: 436). The research design proposed in this paper is able to partially overcome this 'problem' by switching the level of**

analysis. The cases contained in the quantitative (network) dataset – i.e. the network nodes and their relations – are not analysed at the individual, micro-level, but are aggregated to the macro-level of whole networks and thereby provide information about the networks' specific structures. The quantitative data from the lower level of analysis thus contributes to the detailed and systematic knowledge of the cases at the higher level of analysis – the structure of networks. Additionally, such a switch of the level of analysis drastically reduces the number of cases to which a case-based analysis might be applied. While the 'in-depth' case knowledge still relies on quantitative data, it has now also become more feasible to gather additional data on these fewer cases and their contexts.

The approach discussed and presented here combines two methods, namely Social Network Analysis (SNA, e.g. Wasserman and Faust 1994, Carrington et al. 2005) and Qualitative Comparative Analysis (QCA, e.g. Ragin 1987, 2000, 2008), in a mixed methods design (e.g. Tashakkori and Teddlie 1998, Morse 2003). Mixed-methods designs are interesting because they can rely on complementary strengths of both methods. The objective of a research design which combines SNA and QCA is to describe, compare and explain social or political phenomena in two steps. In a first step, different cases of a phenomenon of interest (i.e. policy networks) are systematically described by quantitative tools of SNA. In a second step, the different cases described beforehand are compared by QCA. The goal of this second step is to identify the potential causal paths leading to a specific phenomenon. While the bulk of the literature as well as the empirical example used in this paper originate from the domain of political science, the methodological combination discussed in this paper could be applied to a wide range of other domains.

This contribution is organised as follows. After a short introduction to both SNA and QCA, I briefly present the different possible ways of combining them. I then discuss some general issues of mixing methods, before I present the mutual contributions of the two methods by focusing on how each method allows one to add elements to the analysis that are often lacking in applications of the other method alone. A last methodological section discusses potential pitfalls of such a combination. In the second part of the paper, an empirical study in the domain of political science, the comparison of network structures in Swiss politics at the beginning of the 21st century, serves as an illustration. Because of the lack of space, only one of the possible dimensions of a network structure, the conflict structure, is analysed. The conflict structures of the policy networks are described relying on SNA data on around 30 collective actors per network. In the comparative QCA part, conditions referring to the context of the policy network such as the degree of Europeanisation, the degree of federalism, the intensity of the pre-parliamentary phase, and the degree of public attention are used to identify potential causal paths that lead to different policy network structures. Finally, a last section draws some general lessons based on the findings of the paper.

Social Network Analysis

The focus of Social Network Analysis (SNA) is, as its name suggests, on networks, i.e. relations between cases. Compared to other approaches – for example conventional regression analysis – which focus on cases and their attributes, SNA is based on cases and their relations. The central assumption underlying the focus on networks and network relations is that these relations and the interdependencies that come with them matter for the explanation of individual or collective behaviour. The cases (nodes) can be as diverse as individuals, organisations, states, computers, or animals. The links (ties) between the nodes can represent various kinds of relationships, such as friendship, collaboration, giving advice, disagreement, or cash flows. In the context of the empirical application in this paper, the nodes of the network are collective political organisations such as political parties, interest groups, or agencies of the state administration. These actors can be considered to be linked by ties of convergence or divergence of positions on a specific policy project.³ The basic level of analysis in SNA is the dyad, i.e. two nodes and their relation. However, the focus of the analysis can be on the network environment of individual nodes (ego-networks) or on the structure of a whole network, depending on the interest of the researcher (Sciaroni 1994: 59, Christopoulos 2006: 761). The analysis is usually based on quantitative measures such as – at the individual level – the actor's centralities⁴ in the network or – at the structural level – the network's density.⁵ A general introduction to the method is to be found in Wasserman and Faust (1994) or Scott (1999). More advanced, statistical applications are presented and applied for example in Carrington et al. (2005) or the MIO special issue (2009), and the importance of the method for the

study of politics was demonstrated, among others, by the classic studies of Laumann and Pappi (1976), Laumann and Knoke (1987), or Knoke et al. (1996) on the network structures of different political systems and/or policy domains. More recent work was done by Sciarini and his team (Sciarini et al. 2002, Sciarini et al. 2004, Fischer 2005, Fischer et al. 2009), Beyers and collaborators (Beyers 2002, Beyers and Kerremans 2004), Kriesi et al. (2006), or Heaney (2006).

Qualitative Comparative Analysis

Qualitative Comparative Analysis (QCA) has been introduced by Charles Ragin (1987) as a method for the systematic comparison of usually a medium (5-50) number of cases. It is conceived as a middle path that unifies the best of qualitative, case-based, and quantitative, variable-based, approaches. QCA is based on the assumption that causality in the social reality is complex, i.e. that different combinations of causal conditions can lead to an outcome and that the effect of a condition is dependent on its combination with other conditions.⁶ The method formally presents the values for the outcomes and the conditions in a so-called 'truth table'. This table is then reduced by eliminating redundant factors and finally identifies necessary and sufficient conditions or combinations of conditions that lead to an outcome. The goal is to be able to explain all the cases under study, or, where large datasets are involved, to explain as many cases as possible. In order to do so, the method emphasises the best possible case knowledge and the repeated dialogue between theory and evidence. This means that if the researcher is unable to account for an outcome or if she encounters a contradiction, she has to go back to the cases and use her in-depth case knowledge to find other relevant causal factors. Because of this strong focus on cases, it is often claimed that QCA is closer to the case-based, qualitative methods than to quantitative methods. However, one has to keep in mind that QCA also uses numbers to formalise the outcome and the conditions. The basic form of QCA is crisp-set QCA, in which the conditions and the outcome can take on only dichotomous values – 0 or 1. Fuzzy-set QCA allows us to overcome the inherent limitation of dichotomisation and works with fuzzy set membership scores that take on values between 0 and 1 (Ragin 2000, 2008, Rihoux and Ragin 2008). The procedure of attributing such values to the cases to determine to what degree they display a condition or an outcome is called 'calibration'. QCA has been used to study political phenomena, among many others, by Emmenegger (2008), Magetti (2009), Schneider (2009), or Christmann (2010).⁷

Possible combinations of SNA and QCA

There are only very few applications of a combination of SNA and QCA to be found in the literature. To my knowledge, mainly limited to the domain of political science, the first example of such a combination can be found in Stevenson and Greenberg (2000). The authors use SNA to define the position of a political actor in a policy network on environmental issues. The network position of the actor is then set in QCA as one condition among others that contribute to the explanation of the actors' strategic behaviour. Magetti (2009) analyses a two-mode network⁸ to assess the centrality of independent regulatory agencies in six countries. The position of these actors in the network is the outcome to be explained by different conditions in a QCA. While in Stevenson and Greenberg's (2000) study an SNA-tool is used as a condition, Magetti (2009) uses SNA to operationalise the outcome he is interested in. Both authors use SNA to gather information not on the structure of a whole network, but on the structural position of one actor in the network. These are two out of five possibilities of combining both methods that also are discussed by Spreitzer and Yamasaki (2008). A third possibility is the merger of strategies one and two, namely the use of tools of SNA as conditions and outcomes. Fourth, QCA can help to build typologies of networks (see also Yamasaki and Spreitzer 2006). Fifth, a network-style of visualisation can be used to represent the results of a QCA (see also Yamasaki and Spreitzer 2006). While the idea of visualising QCA results with networks is certainly original, the discussion in this paper concentrates on the first four possibilities listed above. These can be summarised by one and the same logic: Quantitative SNA data is used to describe cases, which are then compared by QCA.

Yamasaki and Spreitzer (2006, Spreitzer and Yamasaki 2008) have not only empirically applied the different possibilities of such a combination to the network of Swiss road traffic policy, they have also extensively discussed the ontological, epistemological and methodological issues underlying the combination of SNA and QCA. A considerable part of the following discussion is based on their arguments and criticisms thereof.

This paper discusses the issues of combining SNA and QCA based on one specific way of combining the two methods, namely the explanation of network structures by other, non-network factors. However, the arguments discussed below apply to other combinations of the two methods and even to combinations of other methods. I will come back to this discussion in the conclusion of the paper.

Mixing methods

Generally, the combination of two methods in a common research design is known as multiple methods, multi-methods, mixed methods, or triangulation of methods (Tashakkori and Teddlie 1998). Compared to a mono-method design, such a strategy allows one to broaden the perspective by which a specific research problem is looked at and thereby to increase the comprehensiveness of the study (Morse 2003: 189ff.). A first reason for this is given by the fact that a mixed-methods design allows treating data from different levels of analysis in an elegant way (Tashakkori and Teddlie 1998: 40, Morse 2003: 205). Second, a mixed methods design can compensate for the many imperfections that are associated with the use of only one method. Scholars can make use of the distinctive, but complementary strengths of different methods (Dunning 2007). For example, while statistical methods are generally associated with the detection of broad, general tendencies in large-N datasets and allow for generalisations thanks to inferences based on probability sampling, they have a much harder time analysing the exact functioning of causal paths or explaining a case that does not fit the general rule. Qualitative methods, by contrast, allow us to analyse single cases and their contexts in great detail, which often results in more valid accounts of the reality, because multiple sources of information can be discussed in much more detail. However, the downside of qualitative research is that it is less able to generalize potential causal explanations to a broader population of cases (see e.g. Ragin 1987).⁹ This is why more and more authors suggest that there is not one methodological truth, but that quantitative and qualitative methods are complementary for fulfilling the researcher's task of answering a research question (Tashakkori and Teddlie 1998). For instance, Lieberman (2005, also Bäck and Dumont 2007) proposes different strategies of combining quantitative, statistical methods that allow to detect general tendencies, with qualitative case-studies that allow explaining outliers or going into more detail concerning the causal mechanisms at work.

While such methodological combinations were sometimes made in an implicit manner, the combination of multiple methods was only rarely identified explicitly. As a consequence, there exist only very few methodological guides or handbooks that discuss the benefits and pitfalls of the integration of different methods (Lieberman 2005, Bennett 2007).¹⁰ A systematic guide to the integration of methods is important, however, because despite its potential benefits, a combination of different methods is also a risky endeavour. To acknowledge that there is not one methodological truth does not automatically imply that all methods can be easily combined. The most serious and fundamental problem is that the underlying assumptions of the methods to be combined might clash and mutually violate each other (Morse 2003: 189ff.). Further, there is the risk that mistakes that the researcher makes within one method 'travel' through the research design and affect the whole research (e.g. Dunning 2007, Rohlfing 2008). Finally, combining methods involves a practical risk. A researcher who applies two methods can be attacked from multiple angles, especially if he applies two methods poorly rather than one well (Bennett 2007, Lohmann 2007).¹¹

This paper is about analysing quantitative data in a case-based framework. The particular methodological combination discussed in this paper is defined as a sequential research design where the application of a more quantitative method in a first step precedes the use of a more qualitative method in a second step. The two phases are separate, but the second is based on the results of the first and/or provides a logical extension from the findings of the first step (Tashakkori and Teddlie 1998, Morse 2003: 199, Tashakkori and Teddlie 2003).

By emphasising the particular strengths and weaknesses of both SNA and QCA, the following paragraphs explain how these two methods mutually complement and enrich each other when combined in a common research design (Yamasaki and Spreitzer 2006: 104).

How QCA enriches SNA: The question of causality

Networks of any kind are complex phenomena because of the amount of information that can be used to describe different aspects of their structure (Knoke et al. 1996: 4, Faust and Skvoretz 2002: 273). SNA has

proved to be a powerful tool for summarising that complexity and describing (and visualizing) network structures. The description of network structures is without a doubt of great value, but as such does not allow making causal inferences on networks, i.e. to explain the formation or the consequences of network structures.¹² SNA per se is not a method that allows an assessment of the causal relationship between different phenomena, but it is rather a particular form of looking at the reality by concentrating on the relations between elements. If the goal is the assessment of potential causal links involving network information as a dependent or an independent variable, a recommended strategy is to combine SNA with another method that explicitly or implicitly compares networks. Possibilities of such comparisons are manifold and can be applied both at the level of network nodes as well as at the level of the overall structure of the network: First, different relations in the same network can be compared by statistical methods (ERGM / p*-models) to grasp how a relation between actors depends on another relation or on actor's attributes (e.g. Wasserman and Pattison 1996, Wasserman and Robins 2005, Robins et al. 2007). Second, the same network relation can be compared over time by dynamic network models in order to explain the evolution of relations or the co-evolution of actors' relations and attributes (e.g. Bunt et al. 1999, Snijders et al. 2010). Both of these possibilities analyse the networks at the level of nodes and ties. A third possibility is to look at networks at the structural level and to compare different networks by more case-based strategies of comparison (e.g. Knoke et al. 1996). QCA is one of the possible ways to compare different network structures and thereby examine potential causal relations between a network and its context. By systematically assessing differences between different network structures and associating them with other characteristics of the cases, the researcher is able to make claims about potential causal relations between the two. A comparison of network structures employing QCA allows detecting the multiple configurations of potential causes that lead to a specific network structure. QCA is especially well suited to analysing complex phenomena which are suspected to be the result of multiple conjunctural causation. As networks are the result of the interdependent interactions of their elements, the institutional and other contexts, as well as the interplay of the two, one can assume that networks are the result of complex causation.¹³ Thus QCA enriches SNA by offering one way of identifying potential causal paths involving networks.

How SNA enriches QCA: The systematic description of complex phenomena

Because QCA is often conceived as being mostly a case-based approach, the in-depth knowledge and thick description of the cases is – in most applications – an important basis for the successful application of a QCA.¹⁴ First, substantive case knowledge can help the researcher to identify the conditions that should be included in the analysis.¹⁵ Second, case knowledge is important to calibrate the fuzzy-sets precisely. Third, the meaningful interpretation of the results of the analysis is helped by in-depth case knowledge. The suggestion of relying on extensive case studies before conducting a comparison between them is of course not restricted to QCA. As for example suggested by Gerring (2007: 84f.), any cross-case comparison should always be based on within-case analysis, and vice versa. In such a dual strategy, 'the ideographic work provides the essential grist for the nomothetic mill' (Knoke et al. 1996: 221). However, what is specific to QCA compared to other methods for cross-case comparison is the fact that this method is usually not used for the comparison of a small number, but of a medium number (5-50) of cases. While attempting to be an expert on three or four cases already requires a lot of work for a researcher, it is even more difficult to have a good case knowledge on more than five (and up to 50) cases. Additionally, networks are known to be complex phenomena, containing a lot of different possible variables of interest at the levels of nodes, ties, sub-networks or the whole network. The researcher must try to focus on the elements that are the most important from his theoretical point of view (Knoke et al. 1996: 4, Scharpf 1997: 139, Faust and Skvoretz 2002: 273). Therefore, with an increasing number of cases and their high complexity, it becomes more and more important to have available systematic indicators that can guide the case studies. A formal quantitative tool like SNA gives the description of the cases a more systematic character by allowing the researcher to systematically apply the same criteria as a basis for the calibration of the cases. I am not advocating a reliance on quantitative information only, rather the case studies should be based on a combination of quantitative indicators and qualitative information (Ragin and Becker 1992, Gerring 2007: 10f.). Seeking both in-depth knowledge about complex cases and comparability between the cases is a difficult task for a researcher. I argue that in any

comparative case study, but even more so when there are more than 3 or 4 cases to compare, the reliance on formal tools such as SNA is beneficial to a well structured comparison.

Problems of mixing methods: clashing assumptions?

Despite its possible benefits to the research, a combination of different methods is also a risky endeavour and poses methodological challenges. Most importantly, scientific methods usually rely on some simplifying assumptions about the nature of reality. While the methods to be combined do not necessarily need to agree on these ontological assumptions, the respective assumptions must be discussed carefully to make sure that they do at least not violate each other (Morse 2003: 189ff.).

Social Network Analysis (SNA) is based on the assumption that the relations among units are important elements for the understanding of processes going on in the social world and the behaviour of actors. Because of this focus on relations, the units that constitute the network are conceived as interdependent. When combining SNA with statistical methods and looking at the elements of the network rather than at the network as a whole, the issue of unit interdependence becomes a problem. In fact, mainstream statistical methods assume independence of the cases in order to be able to isolate the potential causal effects of the independent variables of a model. However, this is not a problem when one concentrates on the structural level of a whole network. In this case, the interdependencies of the elements that constitute the network are not problematic because they all together constitute one case. The cases on the macro-level however, i.e. the different network structures, can be regarded as independent of one another. Apart from this strong focus on relations, SNA makes no further ontological assumptions because it is a way to observe the social world rather than a method for analysing causal connections per se. There are thus no specific assumptions about causality that could clash with the assumptions of QCA.

The most important assumption of QCA is that causality in the social world is per se complex.¹⁶ The method therefore explicitly looks for phenomena of multiple conjunctural causation. This implies first that a combination of potentially causally relevant conditions generates the outcome. Second, there can be several different combinations of conditions that produce the same outcome. And third, depending on the context, either the presence or the absence of a condition may cause a specific outcome (see e.g. Rihoux and Ragin 2009: 8). These assumptions about causality do not clash with the assumptions of SNA. It has even been argued that SNA and QCA fit together well because of both method's emphasis on complexity (Yamasaki and Spreitzer 2006: 102). However, it must be stressed that the assumption of complexity does not concern the same aspects of both methods. In SNA, complexity is related to the assumption that the cases are dependent on each other because of their relations. However, as explained above, this is not an issue at the macro-level of the network structure. In the case of QCA, the assumption of complexity is linked to the potential causal explanation, i.e. the relation between the conditions and the outcome. Thus, while complexity is not an element linking the two methods, neither is it a reason to reject their common use in a research design.

An additional assumption often linked to QCA is that the method has a deterministic view of causality because it posits necessary and sufficient conditions. Because this is not a very realistic assumption, in relation to networks or any other phenomena, the authors have relaxed it and indices of consistency and coverage now allow formulating potential causal chains that are 'mostly' or 'almost always' necessary or sufficient for an outcome to occur (Ragin 2008, Rihoux and Ragin 2009).¹⁷

Besides the possibility of clashing assumptions, two more arguments merit to be briefly discussed here. First, it has also been argued that SNA and QCA appear to be incompatible because the first is commonly considered as being a quantitative, variable-based method, while the second is more easily associated with the qualitative, case-based methods (Yamasaki and Spreitzer 2006, Spreitzer and Yamasaki 2008). However, following the mixed-methods approach, there is nothing basically wrong with such a combination. What is more, the two methods are not necessarily good instances of the two worlds of quantitative and qualitative methods. On the one hand, SNA is more a specific way to observe the real world, but the basic focus on relations between cases does not automatically presume one or the other method. On the other hand, QCA was designed as a middle-path between quantitative and qualitative methods and has thus a dual character. The fact that it incorporates elements of case-oriented and variable-oriented methods makes QCA even a ideal candidate for a combination with other methods (Rihoux and Ragin 2009: 170ff.).

Second, there is the argument that a combination of SNA and QCA could be problematic because of the different levels of analysis they deal with. While SNA would deal more with micro-phenomena, QCA would concentrate on macro-phenomena (Yamasaki and Spreitzer 2006: 101). However, there is multiple evidence of the tremendous utility of SNA to not only analyse individuals and their environment, but also to describe phenomena on the macro-level of the network structure.¹⁸ On the other hand, while it might be true that QCA is more often used at the macro-level, it can also be applied to compare phenomena on the micro-level of individuals (see e.g. Cooper 2005, Ragin and Fiss 2008). Both methods can thus be successfully applied to different levels of analysis. Far from being a problem, for the research design presented in this paper, the question of the level of analysis is even the key for it to be a way of analysing quantitative data in a case-based framework. Because SNA can be a tool to describe phenomena at the micro-level as well as on the macro-level, the quantitative data on the cases at the micro-level can be aggregated and used to describe cases at the macro-level of the network structure.

Empirical application

As has been argued in the last section, there is no reason why the two methods should not be combined. In what follows, I apply the research design to the study of policy networks in Swiss politics.

Theoretical considerations on policy networks and factors influencing them

In the context of this paper, a policy network is to be understood as a general and neutral expression for the fact that different actors are connected by different kinds of relations (Waarden 1992, Kriesi 1994, Sciarini 1995, 1996, Kriesi et al. 2006, Kriesi 2007).¹⁹ Policy networks describe what happens in the ‘black box’ (Easton 1965, Immergut 1998) between the input and the output of a political decision-making process. While in a more extended and complete application, different aspects of policy network structures such as the intensity of collaboration, the coalition structure, or the distribution of power between the coalitions, may all be included in the analysis, the application in this paper is limited to one aspect of policy network structures, namely the conflict structure among the actors. Conflict is one of the most important dimensions of a policy network structure and even one of the most basic and classic concepts of political science (see Laumann and Pappi 1976, Kriesi 1980, Knoke 1990, Waarden 1992, Sciarini 1994, Knoke et al. 1996, Kriesi et al. 2006).²⁰ If the network structure is conflictual, this indicates that the opposing positions strongly differ from each other. As a consequence, actors will have to negotiate and have a hard time to come to a solution. In a consensual network structure in contrast, actors are likely to be able to develop innovative policy solutions.²¹ Thus policy network structures – and the conflict structure as one of its most important dimensions – have potential consequences on the output of the decision-making processes (e.g. Daugbjerg and Marsh 1998, Marsh and Smith 2000). However, there is another important question that logically precedes the question on the relationship between the decision-making structure and the output. We need to understand why a given network structure forms (Jönsson et al. 1998: 332, König and Bräuninger 1998: 446, Linder 2005: 117).

I argue that four different factors influence the intensity of conflict in the policy network. There exist several studies analysing the individual influence of these factors on network structures (or a dimension of it). However, as causality is assumed to be complex, I expect them to jointly influence the network structure. First, Europeanisation describes the phenomenon that even in the non-EU-member Switzerland, more and more policy domains are influenced by the European environment, which does not only affect public policies, but also the institutions and actors of the decision-making process (Mach et al. 2003, Sciarini et al. 2004, Fischer 2005). Europeanised decision-making processes are expected to lead to a consensual network structure because they push internal actors to close their ranks and lower conflict among them (see Katzenstein 1984, 1985). Second, in federalist states like Switzerland, decision-making as well as implementation competences are shared between the central and the regional levels. Decision-making processes that affect the distribution of competences between the two levels are federalist processes. In these cases, and as opposed to processes that oppose two societal groups (as e.g. the left and the right), the central state does not have to negotiate with two conflicting sides in order to come to a solution, but there is usually only one partner to agree with, namely the cantons (see e.g. Thomas 2001: 16f., Linder 2005: 117). Because of this specific constellation, federalism is supposed to lead to a more consensual network structure. Third, in the modern context of mediatized politics (Blumler and Kavanagh 1996, Wolfsfeld 1997, Mazzoleni and

Schulz 1999), political actors compete for public attention in order to attract support for their policy plans and put pressure on policy-makers and influence political outputs in the process (Danielian and Page 1994, Wolfsfeld 1997, Tresch 2008). If a decision-making process can be brought to public attention, the conflict is expanded to actors not involved beforehand (Schattschneider 1960). I therefore expect decision-making processes that are strongly exposed to public attention to display conflictual network structures. Fourth, the pre-parliamentary phase is commonly seen as the key phase in decision-making processes in Swiss politics. Its working groups and consultation procedures offer access points for non-state actors that allow them to express their view and influence the project accordingly (e.g. Kriesi 1980, Sciarini 2006).²² An open and inclusive pre-parliamentary phase increases the opportunities for actors to meet, exchange their positions and negotiate. This is why decision-making processes with an open pre-parliamentary phase are supposed to lead to network structures with low conflict among the actors.²³

Data

This paper compares the policy networks of the 11 most important decision-making processes in Switzerland between 2001 and 2006.²⁴ The cases are the 11th pension reform, the programme of budget relief 2003, the extension of the bilateral agreement on the free movement of persons and flanking measures, the bilateral agreement on the taxation of savings, the bilateral agreement on Schengen/Dublin, the law on nuclear energy, the law on the infrastructure funds, the new law on foreigners, the reform of fiscal equalisation and tasks distribution, the new constitutional articles on education and the law on telecommunication.

Data on these networks was gathered through approximately 250 semi-structured interviews with representatives of organisations involved in the decision-making processes. Based on positional, decisional, and reputational approaches (see e.g. Knoke 1993: 30), 20 to 30 organisational actors per process were identified and interviewed.²⁵ In addition, the study of official documents on the cases provided me with supplementary information.

Description of the cases: Conflict structure and influence factors

In what follows, I present the different SNA indicators that were used for the description of the networks and the calibration of the cases according to their conflict structure.²⁶ Ideally, the calibration procedure relies on previous thick case descriptions. Such thick descriptions of 11 cases would however largely exceed the length of an article. As an example, I describe the case of the 11th pension scheme reform below. However, I concentrate on the outcome, i.e. conflict structure, because this is the part of the case studies that relies on SNA tools. The raw data of all 11 cases, i.e. the values of the different indicators on which the case studies are based, are presented in appendix 1. These indicators help to assess whether and to which degree a case is a member or not of the set of conflictual network structures.²⁷ Indicators of conflict are the following: On the one hand, I calculate the average of convergent (1) and divergent (-1) relations in the network.²⁸ This is an indicator for the general level of conflict in the network. On the other hand, I calculate the average of the convergence/divergence relations between the two main opposing positions.²⁹ This is an indicator for the intensity of the most important conflict that takes place between the two main positions of actors. Both indicators were calculated based on the whole network as well as on the restricted network containing only the core actors.³⁰ This allowed me to control whether the conflict was important, i.e. the most important actors were involved in the conflict.³¹

For the assessment of the degree of Europeanisation as well as the degree of federalism, substantive case knowledge stemming from qualitative information from the interviews and from documentary sources is used.³² The openness of the pre-parliamentary phase is assessed by two indicators: First, I look at the number of phases which constitute formal access points for non-state actors compared to all phases of the process.³³ Second, I look at the intensity with which non-state actors actually participated in the consultation stages and the inner-administrative stages of the pre-parliamentary phase together.³⁴ The degree of public attention is assessed on the one hand by indicators of the intensity of the activities of the actors towards the media and the public, and about the importance of the public debate compared to the negotiations and lobbying in the decision-making institutions.³⁵ On the other hand, it is based on a content analysis of newspapers.³⁶ Table 2 below summarises the fuzzy values of the conditions and the outcome accorded to the different cases.

Description of the cases: The example of the 11th pension scheme reform

The main elements of the 11th pension scheme reform were the financial consolidation of the first pillar of the Swiss pension system as well as the social flexibilisation of the retirement age. On the one hand, measures for the financial consolidation of the pension fund were an increase in the value added tax, an increase of women's pension age as well as an adjustment of the widows' and the widowers' pension level. On the other hand, the 'social' flexibilisation of the pension age was supposed to allow people not able to work until the regular age of 65 to have an early retirement. Not surprisingly, being a reform in the domain of social policy, the project provoked a socio-economic conflict line and pitted the left parties and the trade unions against the right parties and the representatives of the economy. The main controversies among the actors in the policy network of this decision-making process were caused by the proposed flexibilisation of the retirement age, more precisely; under what circumstances early retirement should be possible. The right proposed linear cuts in pension for those willing to stop working before the ordinary pension age. On the other side, the left claimed better conditions for lower income classes. Further, the left was not willing to accept deterioration in the widows' pension. State actors from the federal administration were also involved in the conflict. The responsible Department of Interior Affairs and its offices were in an ambivalent position during the preparation of the bill, but were unable to forge a consensus. They finally proposed a solution to the parliament that was favoured by the right. The Department of Finances by contrast always emphasised the need to rehabilitate the financial situation of the pension funds. Soon after the parliament's decision where the right prevailed, the Social Democrats called for a referendum, together with the Green Party and the trade unions. A popular vote was held in May 2004, where almost 70% of the Swiss people voted against the bill. The high conflict level in this policy network appears in the network structure. Figure 1 shows the network of convergent and divergent ties among the actors on the subject of the 11th pension scheme reform. Green lines represent convergent positions, red lines represent divergent positions. It is clearly visible that divergent ties are omnipresent in this network. The value of the average tie between two actors is slightly negative (-0.04). When one concentrates only on the core actors in the network, the average relation between two actors is even more divergent than in the complete network (-0.1).

Figure 1: Conflict ties in the policy network on the 11th pension scheme reform

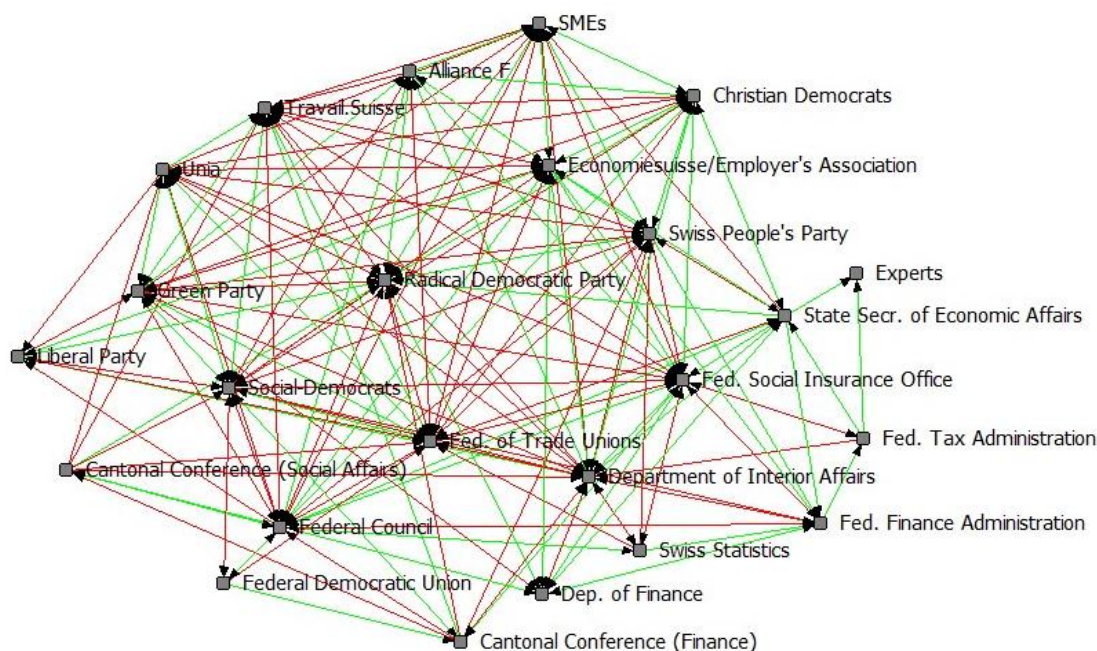


Table 1 below shows not the average conflict among all actors in the network, but concentrates on the conflict between the two main positions, which in this case are the left parties and the trade unions on one side and the right parties, the economic interest groups, and most representatives of the state administration on the other side.

Table 1: Conflict between the two main positions

	Left parties and trade unions	Right parties, economic interest groups and federal administration
Left parties and trade unions	0.86	-0.37
Right parties, economic interest groups and federal administration	-0.3	0.07

In the off-diagonal cases, the average convergence/divergence relation between the actors composing the two positions is shown. The conflict was slightly stronger from the point of view of the left (upper-right case) than from the other position's point of view. This is mainly because state actors, who are all in one position together with the right parties and the economic interest groups, are generally more reluctant to indicate divergent relations with other actors. However, overall, the conflict between the two positions is strong. If only the core actors are considered, the conflict between the two positions is even stronger (-0.69 and -0.42 respectively). Based on qualitative information on the decision-making process leading to the 11th pension scheme reform and on quantitative SNA indicators about the convergence/divergence network, I conclude that the policy network in this case is strongly conflictual. It is a full member in the set of conflictual network structures and gets the fuzzy value 1. Table 2 below summarises the other fuzzy values accorded to the outcome and the conditions of each case.³⁷

Table 2: Fuzzy values for conditions and outcomes³⁸

CASE	Europeanization (E)	Federalism (F)	Pre-parliamentary phase (P)	Public attention (A)	CONFLICT
Pension	0	0	0.4	0.6	1
Nuclear	0.2	0.2	0.4	0.6	1
Fiscal equal.	0	1	0.6	0.6	0.8
Budget	0	0.2	0.6	0.6	0.6
Persons	0.6	0.2	0.4	1	0.6
Schengen	0.8	0.4	0.4	1	0.6
Foreigners	0.4	0.4	0.6	0.6	0.6
Telecom	0.4	0	0.2	0.2	0.6
Infrastructure	0	0.6	0.8	0.2	0.2
Savings	0.8	0	0.2	0.2	0.2
Education	0	1	1	0	0

QCA and results

The QCA is conducted with the software fsQCA (Ragin et al. 2009).³⁹ The presence of the phenomenon (conflictual network structure) and its absence (consensual network structure) are analysed separately. Further, the analysis of necessary and sufficient conditions are separated and the former precedes the latter (see Schneider and Wagemann 2007, Rihoux and Ragin 2008). Each result is accompanied by scores of consistency and coverage, which are measures for the strength of the empirical support for the argument of a set-theoretic connection between the outcome and the combination of conditions (Ragin 2008: 44).⁴⁰ The minimisation procedure of the truth tables produces three solutions, a parsimonious one, a complex one and an intermediate one. For lack of space, only the intermediate solutions will be presented and discussed in this paper.⁴¹

In the present case, the analysis of necessary conditions reveals that there is no necessary condition either for the presence or the absence of a conflictual network structure. The highest consistency values for the presence of a conflictual structure are given by the absence of Europeanisation (0.87) and the absence of federalism (0.84). The highest consistency values for the presence of a consensual structure are given by the absence of public attention, an intense pre-parliamentary phase, and no Europeanisation (all 0.83). These results point mostly in the theoretically expected direction and can be seen as weak indicators of the potential causal paths taking place.⁴² But, especially given the relatively small number of cases, their consistency value is too low to support the claim of necessity (see Schneider and Wagemann 2007: 213, 31ff.).

For the analysis of sufficiency, the respective truth tables, displaying which combinations are considered as consistent with the claim that a subset relation exists, can be found in appendix 2.⁴³ The minimised solution that results from the truth table and that sets out the sufficient configurations for the presence of a conflictual network structure appears in table 3.

Table 3: Sufficient conditions for CONFLICT⁴⁴

	Consistency	Raw coverage	Unique coverage
~EA +	1.00	0.68	0.16
~E~F~P +	1.00	0.58	0.06
~F~PA	1.00	0.61	0.10
Solution	~EA + ~E~F~P + ~F~PA		
Solution consistency	1.00		
Solution coverage	0.84		

Assumptions: ~E, ~F, ~P, A

According to this solution, three potentially causal paths to high conflict exist. First, non-Europeanised cases with a high public attention lead to a conflictual network structure. Instances with strong membership in this combination are the pension reform, the programme of budget relief, the law on nuclear energy, the new fiscal equalisation scheme and the new foreigners' law. In all five cases, the conflict is structured along the classic socio-economic left-right conflict line. The fact that the decision-making processes are not Europeanised implies that two societal groups are in conflict, meaning that the state isn't able to close the ranks and find broad support for its policy towards the exterior. Additionally, once an issue gets broadly discussed in public, it is very probable that a small conflict among the actors in the network gets expanded. This was clearly the case with the policy network on the new fiscal equalisation scheme. A small part of the reform, i.e. the question of the competences in the domain of nursing, was questioned by an alliance from the left and by and by grew into a real threat for the whole project. A second path is given by non-Europeanised, non-federalist processes with a closed pre-parliamentary phase. Examples are the pension scheme reform, the law on nuclear energy, and the law on telecommunications. If both Europeanisation and federalism are absent, actors tend to oppose each other along the classical left-right conflict line where conflict is usually intense. In addition, the conflict can not be solved in the pre-parliamentary phase because the process is closed for external actors. The third path to a conflictual network structure is given by non-federalist cases with a closed pre-parliamentary phase, but high public attention. This is the case for the pension reform, the law on nuclear energy, the free movement of persons and the Schengen/Dublin treaty. The cases of the pension reform and the law on nuclear energy, combining the absence of federalism, a closed pre-parliamentary phase and high public attention, are

obvious candidates for having a conflictual network structure, given the reasoning above. The other two cases are bilateral treaties of Switzerland with the European Union (EU). While their Europeanised nature would tend to lead to a consensual network structure, the fact that they don't treat a federalist issue, that their pre-parliamentary phase is closed (which is usually the case in Europeanised processes) and that they were intensely discussed in the public space let them develop a conflictual structure. In fact, in both cases, the right-wing conservative Swiss People's Party strongly campaigned against the agreements and unsuccessfully challenged them in a referendum vote.

In sum, different combinations of non-Europeanisation, non-federalism, a closed pre-parliamentary phase or high public attention lead to a conflictual network structure among the actors involved in the respective decision-making process. All strong instances of conflictual network structures are explained by the solution term.

The minimised solution setting out the configurations of sufficient conditions for a consensual network structure among the actors is shown in table 4.

Table 4: Sufficient conditions for ~CONFLICT

	Consistency	Raw coverage	Unique coverage
F~A +	0.86	0.5	0.41
E~P~A	0.89	0.33	0.25
Solution	(F + E~P) ~A		
Solution consistency	0.90		
Solution coverage	0.75		

Assumptions: E, F, P, ~A

It suggests that two potential causal paths to network structures with low conflict exist. Both share the condition of low public attention.⁴⁵ The absence of public attention is an important element in the potential causal chain leading to a consensual network structure. Together with either federalism or with Europeanisation and a closed pre-parliamentary phase, the absence of public attention is sufficient for a policy network structure with low conflict. Strong members in the first combination are the new constitutional articles on education and the law on the infrastructure funds. The first is a federalist issue *par excellence*, as it treats the distribution of competences between the Confederation and the cantons in the domain of education. Because the Confederation was able to directly negotiate with the cantons and didn't have to mediate between two opposing coalitions, conflict was very low. The decision-making process leading to the infrastructure funds did not only deal with a federalist problem, but also with a potential conflicts between advocates of public and private transport and between different regions. Because public attention was low, a consensual network structure could be achieved. The second solution, a Europeanised case with a closed pre-parliamentary phase and low public attention, is represented by the treaty on the taxation of savings income. The media did not cover this process very much at all because of its very technical character and because their focus was on other agreements with the EU that were treated at the same time, namely the Schengen/Dublin treaty and the extension of the free movement of persons (see above). Even in the context of a closed pre-parliamentary phase, the potential conflict on the Swiss banking secrecy between the left and the right could thus not really gain momentum, also because no domestic actor had a real interest in defeating the agreement and increasing the pressure of the EU in the banking domain. For the explanation of a consensual network structure, all of the four factors are important and all three strong instances of consensual network structures are explained by the solution term.

Conclusion

The empirical application of the sequential mixed-methods design combining SNA and QCA has shown that phenomena of multiple conjunctural causation are at work for the formation of specific policy network structures. On the one hand, three different constellations of conditions are sufficient for the presence of a conflictual network structure. If a decision-making process is either non-Europeanised and highly publicly present, or non-Europeanised, non-federalist and with a closed pre-parliamentary phase, or non-federalist,

with a closed pre-parliamentary phase and strong public attention, the policy network will turn out to have a conflictual structure. On the other hand, two different combinations of conditions are sufficient for the absence of a conflictual structure, i.e. for the presence of a consensual network structure. Low public attention must either be paired with federalism or with Europeanisation and a closed pre-parliamentary phase. The factors thus don't matter individually, but in conjunction with other factors. The analysis is based on the 11 most important decision-making processes in Swiss politics and results are therefore valid for these cases only. It is an open question whether the same findings can also account for the network structures of less important decision-making processes and for political decision-making in other countries.

The mixed-methods research design has proved to be clearly beneficial in this kind of analysis. On the one hand, the comparison of network structures by a QCA allowed me to compensate for one of the major shortcomings of a SNA, namely the fact that it is, when applied in its basic form, merely a descriptive method. On the other hand, because the case studies prior to the QCA were based on SNA tools, I had available systematic indicators for the calibration of the cases according to their conflict structure. This mutual benefit of compensating for the weaknesses of the other method is what makes SNA and QCA ideal partners for a combination in a common research design. As argued above, there appear to be no major reasons, such as for example clashing assumptions, which would make such a combination impossible.

In addition to showing the utility of mixing methods, the research design discussed in this paper demonstrates a possible strategy to adopt if one wants to analyse quantitative data within a case-based approach: The aggregation of the quantitative data to a higher level of analysis allows first increasing the amount of information on one case and second to decrease the number of cases that are candidates for being analysed qualitatively. The aggregated data on the level of the new cases can then be used as a basis for the qualitative analysis of the case, without however losing the quantitative character of the data. This quantitative character of the data at the aggregated level of analysis helps to systematise case descriptions for their further comparison.

The strategy of switching the level of analysis is however not restricted to the combination of SNA and QCA. Basically, every quantitative dataset in which cases can be aggregated to a higher level of analysis can be treated in this way. For example, data on voters can be aggregated to the level of geographical units, data on pupils can be aggregated to the level of schools, data on shops can be aggregated to the level of firms, etc. What is important is that the higher level is of an interest to the researcher and represents a phenomenon of its own, i.e. something more than just a summary of the cases at the individual level. Especially with SNA data, this is most often the case because of the intrinsic duality of the data: When there is network data on the individual level, there is per definition a higher level of analysis, which is the network.

Also, the combination of SNA and QCA is not unique concerning both methods' mutual benefits in a common research design. On the one hand, QCA is only one strategy of adding a potential causal element to the study of networks. Other possibilities are given by statistical methods such as Exponential Random Graph Models (ERGM) or by small-N comparisons of network structures. On the other hand, SNA is not the only method that can introduce a systematic element as a basis for the description and comparison of a medium number of cases. Ideally, every case-study should be built of qualitative and quantitative elements (Gerring 2007).

In spite of these assertions that the combination of SNA and QCA is not at all special and unique – or exactly because of this – I hope that the methodological discussion and the empirical application in this paper can be an inspiration for other researchers who want to combine methods or analyse quantitative data within a case-based approach.

Notes

¹ I would like to thank Sandrine Bossy, David Keller, Guenda Malinverni, Pascal Sciarini, Uwe Serdült and Denise Traber who contributed to the data gathering as project leaders or collaborators. This article is part of a wider research project sponsored by the Swiss Science Foundation (Grant No. 100012-113964).

² A ‘case-based approach’ should be seen as an approach that studies one or only a few cases. This includes, in a broad sense, small-N comparisons, strategies of counterfactual reasoning, congruence methods or within-case methods such as process-tracing, etc. (see George and Bennett 2005). Unlike quantitative approaches, which are based on numbers, case-based approaches most often rely on more qualitative and multiple sources of information (e.g. Benoit 2005, Munck 2005).

³ A link of two actors is present if they share a policy position. The actors do not need to actually engage with each other in the political process (even if they probably will most of the time), it is enough for them to share a position and be aware of their common positions. As a result, the network is not to be understood as a network of real relationships where actors actually engage with each other, but more generally as a network constructed by the researcher during the research process in order to grasp the conflict structure among the actors (see also the section on the data later in the paper).

⁴ Network centrality describes a group of different measures for the importance of a node in a network, depending on the node’s location in the network (see e.g. Wasserman and Faust 1994: 169-219).

⁵ While SNA is usually associated with quantitative methods due to the nature of the data, the concept of the network can also be supported by qualitative data (for policy networks, see e.g. Börzel 1998).

⁶ In the language of QCA, the outcome is the phenomenon to be explained, and the conditions are the potential causal factors included in the analysis.

⁷ See www.compassss.org for a database containing many more applications.

⁸ A two-mode network is a network based on the relations between actors and events, as opposed to a one-mode network where links are between actors and actors.

⁹ This opposition between quantitative and qualitative logics has created what is sometimes called a ‘war of paradigms’, where quantitative and qualitative approaches were most often conceived as incompatible (see e.g. Ragin 1987, King et al. 1994, Tashakkori and Teddlie 1998, Brady and Collier 2004). However, more and more authors argue that the distinction between quantitative and qualitative approaches is artificial and overstated (e.g. Benoit 2005, Kittel 2005) and call for the integration of different methods (Tarrow 1995, Tashakkori and Teddlie 1998, Lieberman 2005, Brady et al. 2006, Tarrow 2010).

¹⁰ See Tashakkori and Teddlie (1998, 2003) for an exception.

¹¹ For a more extended discussion of cautionary perspectives on mixed methods, see the 2009 symposium of the APSA Newsletter on Qualitative and Multi-Method Research (e.g. Ahmed and Sil 2009, Ahram 2009, Chatterjee 2009).

¹² In fact, SNA and the study of networks in general have often been criticized to be merely descriptive (see e.g. Dowding 1995).

¹³ For a definition of complex causality, see the section on assumptions of QCA below.

¹⁴ Note that in large-N QCA research designs, it is more difficult for the researcher to have substantive knowledge on each case. While the application of QCA-techniques to large-N datasets is not a problem from a technical point of view, and QCA-techniques have been fruitfully applied in large-N research designs in order to uncover complex causality (see Ragin and Fiss 2008, Berg-Schlosser et al. 2009: 4), the single cases (or at least not all of them) are no longer at the centre of such applications (Schneider and Wagemann 2007: 272).

¹⁵ Apart from good case knowledge, established theory or findings of other research can be used in order to identify conditions to be included in the analysis.

¹⁶ Given the increasing complexity of political systems (Hall 2003, Schmitter 2009), this assumption is a very plausible one for the empirical example, as one can expect that no factor alone can fully explain policy network structures.

¹⁷ Note that compared to mainstream statistical techniques – and because it is partially a critique thereof – QCA has a different conception of causality and doesn’t assume uniformity and additivity of causal effects, unit homogeneity, causal symmetry, linearity, independence between variables, or independence of cases (see Rihoux and Ragin 2009: 9).

¹⁸ By the way, in their own application (Yamasaki and Spreitzer 2006, Spreitzer and Yamasaki 2008), the authors use SNA at the macro-level, i.e. to describe the structure of the whole policy network.

¹⁹ Note however that the concept of the policy network is also used, in the existing literature, in two alternative ways. First, it is used as a metaphor for any type of relations between actors in a policy domain, but not backed by any empirical observations. This lack of empirical basis makes it difficult to use a policy network as a part of a causal model (Dowding 1995, 2001, Christopoulos 2008). Second, it is used not as a neutral term describing the relations between the actors, but as a new and qualitatively different form of policy making, situated between the state and the market. This again is problematic because the concept can then only be applied to a very restricted number of situations.

²⁰ Note that studies about conflict in Swiss politics are quite rare, which might be due to the fact that Switzerland is often seen as being the consensus democracy *par excellence*, where institutions and the political culture foster consensus building (Neidhart 1970, Kriesi 1980, Lijphart 1999). For instance, it is not yet clear how exactly the degree of Europeanisation or the intensity of the pre-parliamentary phase influence the level of conflict (Neidhart 1970, Sciarini et al. 2002, Nicolet et al. 2003, Sciarini 2006).

²¹ For the purpose of simplicity, I claim that cases that are full members in the set of non-conflictual network structures are full non-members in the set of consensual network structures and vice versa. This is of course open to discussion from a theoretical and conceptual point of view. See e.g. Ragin (2008: 195) for a discussion of this issue.

²² According to Neidhart's (1970) reasoning, the intense pre-parliamentary phase with several access points for non-state actors is designed to include a maximum of different positions and thereby to avoid a later referendum against the project.

²³ Admittedly, it could also be argued that the direction of causality concerning the last two factors – media presence and the openness of the pre-parliamentary phase – goes at least partly in the opposite direction, i.e. that the conflict in the network structure has a consequence on media presence and the access of the actors to the process.

²⁴ The 11 cases were selected because of their substantive importance. This importance was assessed based on an expert survey among approximately 80 experts of Swiss politics. The differences of the average importance of the 11 cases selected are minimal.

²⁵ Most of the interviews were conducted between February and July 2008.

²⁶ For the comparison of the networks I use fuzzy-set QCA (fsQCA) where the different conditions and the outcome can take on continuous values to account for different degrees of presence of a phenomenon.

²⁷ If a case is fully in a set, it has a fuzzy score of 1, if a case is fully out of it, a score of 0 is attributed. Intermediate scores like 0.8 (0.2) mean that a case is not fully, but mainly in (out of) the set, scores like 0.6 (0.4) mean that a case is more or less in (out of) the set. Fuzzy-set scores are accorded to the cases based on the indirect method of calibration (see Ragin 2008: 85ff.).

²⁸ Based on a list comprising all the actors that participated in the specific process, the interview partners were asked to select the actors with which their organisation had mainly convergent or divergent positions during the decision-making process. I calculate the average value in the network using the software UCINET (Borgatti et al. 2002).

²⁹ I identify the two major opposing positions with an analysis of structural equivalence in UCINET (Borgatti et al. 2002). Based on the convergence/divergence network, actors are aggregated according to the similarity of their structural profile until only two groups of actors remain.

³⁰ The core of actors is composed of all the actors in the network that have a score of 50% or more of reputational power. The reputational power of an actor is calculated as follows: From a list containing all the actors participating in a decision-making process, the interview partners had to select the ones they perceived as being 'very influential' in the specific decision-making process. The reputational power score of an actor expresses the percentage of interview partners who perceived the actor as 'very influential'.

³¹ Anchor points for the calibration of the network structure are the following: If all four indicators display a negative value, meaning that conflictual relations are more important according to all four indicators, then the case is fully in the set of conflictual network structures (1). If all four indicators display a positive value, the case is fully in the set of consensual network structures (0). The crossover point (0.5) is given by cases with two negative and two positive indicators with the same strength.

³² Because the calibration of these two conditions is based on qualitative information, there is no raw data in the appendix. Anchor points are the following. If a decision-making process directly depends on an international treaty, the case is a full member in the set of Europeanised cases (1). If a decision-making process deals exclusively with a domestic project, the case is fully out of the set of Europeanised cases (0). The crossover point (0.5) represents cases that deal with an international treaty and a domestic project to exactly the same extent. If a decision-making process deals with a project that concerns the competences of the Confederation and the cantons equally, the case is fully in the set of federalist cases (1). If a decision-making process deals only with competences on the central level, the case is a full non-member in the set of federalist cases (0). If a project deals half with the distribution of competences between the Confederation and the cantons, and half only with competences of the Confederation, then it lies exactly on the crossover point (0.5).

³³ This is based on the reconstruction of the decision-making process prior to the interviews. This reconstruction was based on documentary sources and was later validated by the interview partners.

³⁴ To assess their participation at the different stages of the decision-making process, interview partners were asked to indicate, on a list of all stages of the decision-making process, in which stage their organization was involved. The participation score of the whole pre-parliamentary phase was then calculated as the average of each stage's percentage of all external actors who participated in that stage. The differentiation of consultation phases and inner-administrative phases is based on the formal nature of the stages: Consultation stages are officially open to external actors, while inner-administrative stages are officially closed to them. Calibration is, in a first step, based on the ratio of consultation phases over all phases. This value is then decreased or increased if the indicators for the actors' real participation point into one or the other direction. The pre-parliamentary phase is totally open (1) when the ratio for formal openness is at least 0.7 and the indicators for real openness are strongly above 0.5 (consultation phases) or 0.25 (inner-administrative phases). The pre-parliamentary phase is completely closed (0) when the ratio for formal openness is 0.3 or less and the indicators for real openness are clearly below 0.5 (consultation phase) or 0.25 (inner-administrative phase). The crossover point

(0.5) is given with cases for which the formal ratio is exactly 0.5, the indicator for the real openness of the consultation phase is 0.5 and the indicator for the real openness of the inner-administrative phase is 0.25.

³⁵ The interview partners were asked to indicate their intensity of use of different strategies of communication with the media and the public, such as press conferences, journal ads or demonstrations. Anchor points are the following. Cases with the highest values for actor's activity and the highest values for the number of newspaper articles are fully in the set of cases with strong public attention (1). Cases with the lowest values on both indicators are fully out of the set of cases with strong public attention (0). Cases with average values of actor's activity and about one newspaper article per day (30 per month) represent the crossover point (0.5). If one indicator is higher than the crossover point, it is sufficient for the case to be more in than out of the set of cases with strong public attention (0.6).

³⁶ Keywords such as the title of the policy project were searched for in a media database containing the most important Swiss newspapers (www.swissdox.ch). The appearances were counted and results were controlled for the duration of the decision-making process.

³⁷ Table 2 shows that there are 8 strong instances (membership score over 0.5) of conflictual network structures, but only three strong instances of consensual network structures. However, this rather unequal distribution of cases does not have any direct implications for the analysis, because Fuzzy-Set QCA relies on all cases – i.e. also on weak instances – in order to assess subset relations between conditions and outcomes.

³⁸ In table 2 as well as in the solution terms, the conditions are abbreviated as follows: Degree of Europeanisation (E), degree of federalism (F), openness of the pre-parliamentary phase (P), degree of public attention (A).

³⁹ The analysis of sufficient conditions was conducted using the Truth Table Algorithm (Ragin 2008: 124ff.).

⁴⁰ Consistency indicates how closely a perfect subset relation is approximated. Like statistical significance, it signals whether an empirical connection merits the close attention of the investigator. Coverage assesses the degree to which a cause or causal combination accounts for instances of an outcome. Like statistical strength, it indicates the empirical relevance or importance of a set-theoretic connection (Ragin 2008: 45).

⁴¹ In the observed reality, diversity is often limited and does not cover all the possible combinations of conditions (see e.g. Ragin 2008: 147ff.). In the present empirical example, only 8 out of 16 possible combinations (given 4 conditions) are empirically observed, while the other, non-observed combinations are so-called logical remainders. When minimizing the truth table, the software can make use of the logical remainders in different ways. The parsimonious solution permits the incorporation of any logical remainder that contributes to the derivation of a logically simpler solution. The complex solution doesn't include any logical remainder at all. The intermediate solution makes only use of the so-called 'easy' logical remainders, i.e. the ones that do not go against existing theoretical or substantial knowledge. These assumptions appear below tables 3 and 4.

⁴² The fact that no Europeanisation comes close to being a necessary condition for both the presence and the absence of a conflictual network structure indicates that this condition plays an ambiguous role.

⁴³ The threshold for consistency of sufficient conditions should at least be .75. However, any major gap between the consistency scores closest to 1 and the others (still gt .75) can serve as a threshold (Schneider and Wagemann 2007). For the two truth tables in this paper, both of these criteria apply at the same time.

⁴⁴ Note that by convention, capital letters indicate the presence of a phenomenon. A capital letter preceded by a ~ indicates absence of a phenomenon. Two letters together represent a situation of logical 'and'. A + represents the logical 'or' and thus separates two different paths to the outcome.

⁴⁵ Note that this does not mean that low public attention is a necessary condition for a consensual network structure on its own, but that low public attention is a necessary part of all sufficient paths to a consensual network structure.

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Biography

Manuel Fischer holds a master's degree in Political Science. He has collaborated as a research assistant on the research project "The Swiss decision-making system in the 21st century: power, institutions, conflicts" at the University of Geneva and was a visiting scholar at the University of North Carolina at Chapel Hill (USA) with a "Young Scholar Scholarship" from the Swiss Science Foundation. He is about to finish his dissertation on decision-making structures in Swiss politics.

Appendices

Appendix 1

1.1 Raw data on the conflict structure

CASE	Average all	Average between main positions (all)	Average core	Average between main positions (core)	Fuzzy-value
Pension	-0.04	-0.33	-0.10	-0.55	1
Budget	0.01	-0.24	0.30	-0.63	0.6
Savings	0.23	-0.11	0.47	0.16	0.2
Persons	0.11	-0.37	0.37	-0.85	0.6
Schengen	0.11	-0.53	0.22	-0.67	0.6
Nuclear	-0.02	-0.48	-0.09	-0.69	1
Infrastructure	0.18	-0.03	0.21	0.01	0.2
Foreigners	0.05	-0.30	0.13	-0.64	0.6
Telecom	0.05	-0.25	0.08	-0.35	0.6
Education	0.18	0.41	0.34	0.41	0
Fiscal equal.	0.04	-0.10	-0.04	-0.45	0.8

1.2 Raw data on the openness of the pre-parliamentary phase

CASE	Ratio consultation phases / all phases	% of external actors with access to the consultation phases	% of external actors with access to the inner- administrative phases	Fuzzy-value
Pension	0.45	0.49	0.27	0.4
Budget	0.67	0.44	0.28	0.6
Savings	0.42	0.44	0.23	0.2
Persons	0.54	0.5	0.21	0.4
Schengen	0.3	0.56	0.28	0.4
Nuclear	0.6	0.39	0.11	0.4
Infrastructure	0.55	0.63	0.3	0.8
Foreigners	0.73	0.47	0.09	0.6
Telecom	0.3	0.51	0.22	0.2
Education	0.7	0.7	0.33	1
Fiscal equal.	0.77	0.48	0.22	0.6

1.3 Raw data on the degree of public attention

CASE	Interviews, Press conferences, etc.	Journal and public ads	Demon- strations, strikes, etc.	Public vs. decision- making process	Newspaper articles / month	Fuzzy-value
Pension	2.3	1.8	1.2	2.1	36.0	0.6
Budget	2.1	1.3	1.0	2.7	59.0	0.6
Savings	2.1	1.1	1.0	2.9	26.1	0.2
Persons	2.7	2.0	1.3	2.1	72.4	1
Schengen	2.5	1.6	1.2	2.4	100.0	1
Nuclear	2.4	2.0	1.4	2.3	14.3	0.6
Infrastructure	2.4	1.2	1.1	2.8	13.2	0.2
Foreigners	2.1	1.6	1.4	2.8	32.2	0.6
Telecom	2.4	1.2	1.1	2.9	13.8	0.2
Education	2.1	1.2	1.1	2.8	7.2	0
Fiscal equal.	2.2	1.3	1.2	2.7	62.7	0.6
∅	2.3	1.5	1.2	2.6		

Appendix 2:

2.1 Truth table for the presence of a conflictual network structure

CASE	E	F	P	A	CONFLICT	Consistency
Telecom	0	0	0	0	1	1
Nuclear, Pensions	0	0	0	1	1	1
Persons, Schengen	1	0	0	1	1	1
Budget, Foreigners	0	0	1	1	1	1
Fiscal equal.	0	1	1	1	1	1
Savings	1	0	0	0	0	0.67
Education, Infrastructure	0	1	1	0	0	0.5

2.2 Truth table for the presence of a consensual network structure

CASE	E	F	P	A	~CONFLICT	Consistency
Savings	1	0	0	0	1	0.89
Education, Infrastructure	0	1	1	0	1	0.86
Schengen, Persons	1	0	0	1	0	0.73
Fiscal equal.	0	1	1	1	0	0.7
Nuclear, Pensions	0	0	0	1	0	0.63
Budget, Foreigners	0	0	1	1	0	0.63
Telecom	0	0	0	0	0	0.62