

# Inter-cantonal institutions as promoters of electricity and energy policy diffusion in Switzerland\*

Felix Strebel\*

October 2009

## Abstract

Typically for the federal political system in Switzerland, the elements of the energy policy field are shaped by the principle of subsidiarity. The aim is that cantons promote innovative problem solutions and regionally adapted implementation. For this reason, policy differences between cantons are large and create a need for coordination. Due to these cantonal responsibilities in implementation, this paper tries to answer the question whether or not there is a diffusion process behind the innovation of cantonal electricity and energy policy measures in Switzerland. More concretely I will analyze the impact of an inter-cantonal institution on different innovations in the field of energy policy. The research question is approached with an event history analysis on three different innovative measures in the Swiss cantons for the last eighteen years. A more comprehensive picture of diffusion in one policy field is drawn with this approach. The main contribution of this paper is the finding that institutions promote diffusion in one policy field only for measures with certain characteristics.

---

\* Paper for presentation at the TRANSPOSE Midterm Conference in Münster/Germany, November 5 2009.

Research is conducted in the Energy policy Fundamentals Research Programme funded by the Swiss Federal Office of Energy (Project Number: 102670). The project runs from October 2008 to March 2011 under the lead of PD Dr. Thomas Widmer.

♣ Department of Political Science, University of Zürich, Switzerland; Seilergraben 53; 8001 Zürich; strebel@ipz.uzh.ch

# **1 Introduction**

That states adopt each others' policies is not a new phenomenon. This aspect, however, was underestimated in the analysis of policymaking for a long time. Increasingly, policy diffusion gained relevance in international and European as well as in the context of federal states and state policymaking. As one of the first scholars engaged with diffusion in federal states Walker (1969) defined policy adoption by a state as a function of internal determinants and external factors. For a long time, it was commonly assumed that geographic proximity enhances communication and learning what leads to diffusion. Scholars have accumulated evidence of different diffusion effects (Berry/Berry 1992, Mintrom 1997), while recently the study of the mechanism behind this process dominates the agenda (Meseguer 2005, Dobbin et al. 2007, Shipan/Volden 2008, Volden et al. 2008, Gilardi et al. 2009). The puzzle I am trying to dissolve with this paper is the impact of institutions on the process and especially on the diffusion of measures with different characters in one policy field.

Comparable to the domain of environmental policy, the field of energy policy is highly topical in times of discussions on the shortage of energy and peak oil. In the light of the financial crisis, that evoked economic stimulus packages, large amounts of money were allocated to programs that promote renovations with the aim of rationalizing the use of energy and promoting the use of renewable energy in the building sector. There are several studies focusing the diffusion of different technical innovations within one country: diffusion is usually observed either on the level of end consumers (Fuglseth 2008, Nässén et al. 2008) or energy producers (Wüstenhagen et al. 2003, Madlener 2007). Likewise, the impact of policy instruments is a popular object of research (for examples see Rieder/Walker 2009). Policy innovation in the field of energy policy however is a topic that has not been studied extensively neither in the federal setting of the United States nor in Switzerland.

Due to the extensive responsibilities of the cantons the Swiss federal system is predestined for the study of policy diffusion. Typically for the Swiss system of "implementation by federal delegation": tasks are specified and executed by the cantons although the financial part and framework laws often come from the Federation. As a result, cantons have different legislation. This is for instance the case in the field of energy policy. While the first canton introduced an energy law thirty years ago, others did not emphasize this topic until recently or have not done so at all. Nevertheless, measures were introduced especially in the last decade. Due to the interdependences and influences from different levels, cantons are required to cooperate. Institu-

tions play a crucial role for different forms of cooperation and coordination. As mentioned above, these institutions are in the focus of this paper. To explain diffusion in an institutional context, three measures with a clear variance in one dimension will be tested.

The Swiss federalism with its peculiarities is reviewed in the next chapter of this paper. Building on this, I will shed light on Swiss energy policy and cantonal energy policy in particular. Chapter 4 narrows policy diffusion in federal states with a special focus on the role of institutions in this process. While discussing diffusion in the field of energy policy, the hypothesis will be elaborated. In chapter 5, the data structure and the method of choice are explained, while in the following chapter the results are discussed. The paper is concluded with an outlook and a discussion on the gaps of this research.

## **2 The federal system of Switzerland**

Federalism is bound to a constitution in which the members have considerable legal and political autonomy as well as significant influence on decision making at the federal level (Linder 1999: 135).<sup>1</sup> Given the extensive competences on cantonal level, this is strongly the case in Switzerland. One of the central peculiarities of the Swiss political system is the competence on cantonal or communal level that leads to designs of policies that are specific to the socio-economic, demographic and political prerequisites in the cantons. As a consequence policies are tailored to the circumstances in the respective space. This independence of the cantons is strengthened with fiscal sovereignty. Following article 1 of the Federal Constitution the cantons can exert their sovereignty in all areas that are not constitutionally ascribed to the federal authorities. Generally we can speak of subsidiarity where the federal level does not occupy the major position.

Some policy fields are clearly assigned to one specific level while others, and this has increasingly been the case in the last decades, overlap two or even three levels of authority (federal, cantonal and communal). Independent from federal bounds, cantons possess competences for policy innovations in several fields. Basically, the federal government plans and creates rules, while the laws are implemented or executed by the cantons (Kissling-Näf/Wälti 2007: 503). This so called “Implementation by federal delegation” can be shaped in different ways. For some policies, cantons execute clearly defined tasks of the federal law without any further legislation in the cantons. In other fields the cantons hold extensive possibilities to actively partici-

---

<sup>1</sup> Due to the design of this study the cantonal influence on the decision-making process on federal level is not of interest in the present paper and is therefore not covered.

pate with the formulation of detailed laws in their own legislation as well as in the consequence of delegation in this principal-agent constellation. The principal has very little information and control over how decisions are implemented at the agent level (Sager/Rüfli 2005: 113). Hence, the cantons act not only as implementing, but also as programming agencies. The latter can lead on one hand to the above mentioned tailored legislation but on the other hand to pronounced differences between the cantons. Although the cantons are subordinate to the supervision of the Federation, the relationship is rather cooperative than conflictive (Sager 2003: 320). As a consequence of increasing policy integration between the Federation and the cantons as well as the sustained delegation of federal tasks to the cantons, the problems that are specific to this form of federal implementation have actually become the main topic of Swiss Federalism (Vatter 2007: 91).

Given that in some policy fields 26 legislatures elaborate measures, a comprehensive picture is often missed. Several different aspects are responsible for the different outcomes and the intensity of the implementation. They result from different values and interests of the involved actors, from internal factors as well as from programmatic specifications (Faganini 1991, Vatter 2007). If a basic law is set on the federal level the degree of the cantonal implementation depends on the overlap with the political priorities of the cantonal executives (Kissling-Näf/Wälti 2007). Additionally, internal factors such as large disparities among cantonal administrations in terms of financial, legal and human resources influence the process of implementation differently. For the general introduction policy specific characteristics like overly complex procedures, excessively detailed federal legislation and insufficient regard for the specific regional context are responsible for the grade of implementation. The limited financial capacity of the Federation might be an additional hurdle. Institutions of horizontal coordination are often created to approach such difficulties.

With the growing number of political tasks and interdependences between the cantons, there is an increasing need for coordination. Concrete topics are usually regulated in so called inter-cantonal treaties (Konkordat). They usually come in the form of a contract between two or more cantons or communities.<sup>2</sup> The most pronounced form of institutionalized cooperation between cantons are the inter-cantonal conferences of directors. These conferences exist in different fields and as consultative bodies they serve as platform to exchange experiences and to share and coordinate tasks between cantonal directors or cantonal specialized officials. Apart from these two types of conferences on federal level there are several similar institutions on regional

---

<sup>2</sup> 2004 Bochsler et al. (2004: 99) counted over 700 Concordats in Switzerland.

level. In many cases, these regions represent a more functional space in comparison to the historically shaped cantonal borders.

### **3 Energy policy in Switzerland**

Analog to most policy fields in Switzerland, the legislation in the energy policy domain is multilayered. While the security of energy supply is a joint task of both the Federation and the cantons, the former is responsible for research and the security of atomic reactors. The cantons are in charge of the economical and rational use of energy/electricity and the use of renewable energies in the building sector. As a consequence, standards in cantonal legislations are not uniform. Electric power companies in Switzerland have the legal form of public-private partnerships, where the cantons are majority shareholders and/or delegate people to the board of executives. The Cantons therefore play a central role in the production of electricity and its composition.

*“We have everything we need except political will,  
but political will is a renewable resource.”*

Al Gore<sup>3</sup>

Until the early nineties only a small number of cantons enacted a cantonal energy law or passed policy innovations in this domain. While the first cantonal energy law was enacted in 1979, currently still not all cantonal legislations contain an energy law. The catastrophe in Chernobyl as well as the Brundtland-Report led to a more sensitive handling of environment and energy questions (Rieder 1998). However, the consumption of energy has increased more than twenty percent since 1990. Little less than a third of the overall consumption incurred in buildings what underlines the relevance of this policy field.<sup>4</sup> Several different measures concerning energy-/electricity-saving as well as renewable energies were introduced in the building sector by the cantons in the last twenty years. Despite difficult conditions for the implementation of uniform standards in Switzerland the quality and conversion execution is compared to other European countries on a similar level (Rieder/Walker 2009: 11). To examine the questions at stake the three following measures are considered: maximum portion of non-renewable energies, new

---

<sup>3</sup> Al Gore at the Smith School World Forum on Enterprise and the Environment, July 7 2009.

<sup>4</sup> Figures are taken from the Energystatistic of the Swiss Federal Office of Energy (SFOE).

regulations on insulation and a limit of electricity consumption for large-scale consumers. The three selected measures are all parts of the Model Regulations (MuKE) that were introduced by the Inter-cantonal Conference of Energy-Directors (ICED) in the year 2000 supported by the Conference of Cantonal Energy Officials. This latter body meets on a more regular basis and is at the disposal of the Conference of Directors. The Model Regulations are designed to reach a wide harmonization of technical aspects in cantonal legislation on voluntary basis. These regulations were enabled through the Federal Energy Law 1998 and influenced by the standards set by the professional associations (mainly Swiss association for architects and engineers SIA). Cantons cannot be forced to implement neither by the Federation or this conference.

The first measure to investigate sets a maximum limit for the use of non-renewable energies in newly constructed buildings (further called “Minimum Requirements”)<sup>5</sup>. It is required, that not more than eighty percent of the permissible energy used for heating and hot water may be covered with non-renewable energies. It is up to the canton or to the constructor how the remaining fifth is covered. The idea behind this is that a larger scope of action will leave the choice for the achievement of the objective. In the building sector such a measure is nothing extraordinary, rather the way of regulating is innovative. This measure requests from builders the knowledge of alternative solutions, what needs additional training. The second measure targets the insulation of buildings (further called “Insulation”)<sup>6</sup>. This proposal includes new limits on one hand and a new method of calculating the insulation density on the other. This new approach includes the size of the outer shell of the building in the method of calculation. Special regulations are applied for renovations and conversions of buildings. Insulation is generally seen as the key for the rational use of energy in buildings. The measure of electricity consumption of large-scale consumers is chosen as the third measure and focuses larger buildings that do not serve for living (further called “Electric Energy”)<sup>7</sup>. The goal of this module is that buildings for services, commercial or public purposes consume less electricity for lightening, ventilation and cooling. This regulation should concretely be applied to buildings, which floor areas account altogether more than 2000m<sup>2</sup>. Covered are apart from new large-scale consumers also the ones that renovated or converted their buildings. Having in mind that this measure follows a completely new idea, an adoption of this measure might exhibit a rather big obstacle. Besides these three meas-

---

<sup>5</sup> This measure corresponds to the Module 2 of the Model Regulations 2000 and represents an extension of the basis module that includes different measures.

<sup>6</sup> This measure corresponds to parts of the basic module of the Model Regulations 2000 respectably the SIA standards 380/1 from the year 2001.

<sup>7</sup> This measure corresponds to the Module 6 of the Model Regulations 2000 respectably the SIA standards 380/4 from the year 1995.

ures the Model Regulation further propose a basic module that contains several small but central regulations, modules that suggest the containment of the use of electric resistance heating and heating for outdoor swimming pools, the introduction of usage-bound charging for heating costs, the proof of necessity for cooling and humidification, cantonal energy planning and a module for large scale energy consumers.

The three measures discussed at length are chosen for different reasons. They were all not mentioned in any federal or inter-cantonal agreement before the period of investigation. Additionally they were all introduced in more than ten cantons and are of regulative character. Experts assured, that compared to other energy policy measures the ones on question are implemented only with small deficits while others were, although implemented in cantonal legislations, not seriously realized in practice. The measures on Minimum Requirements and Insulation are either updates or enhancements in fields that are already regulated: With the adoption of Electric Energy, however, a canton enters a field that was usually unregulated. There are many different promotional programs in this field, but no program sets direct incentives for the canton to implement parts of these Model Regulations. From the theoretical perspective the selection proofs to be adequate to answer the question of interest and the proposed hypothesis that is developed in the next chapter.

#### **4 Policy diffusion in federal states**

Through the earlier mentioned growing interdependence between counties and sub-national units, policies are often not invented without the influence of the experience of other jurisdictions. Everett Rogers (2003: 5) defines diffusion as a process by which an innovation is communicated through certain channels over time among the members of a social system. Generally it can be expected that there are processes that range from the diffusion of broad ideas like liberalism (Simmons/Elkins 2004) to the diffusion of a very concrete policy such as a heating system (Madlener 2007). Diffusion therefore is a phenomenon observed on a macro-level and aims to discover whether policies spread in an epidemiological sense. Policy diffusion is a popular topic in the field of American federalism (Walker 1969, Gray 1973, Berry/Berry 1990, Mintrom 1997, Karch 2006, Shipan/Volden 2008, Volden et al. 2008). While federalism is one of the primary topics in the research on Swiss politics, policy transfer and diffusion among Swiss cantons was until recently a dark spot in Swiss politics. Only a small number of studies tested these concepts in the Swiss setting (Widmer/Rieder 2003, Schaltegger 2004, Feld 2006, Kübler/Widmer 2007, Füglistner 2008, Gilardi/Füglistner 2008).

Empirical research on policy innovation generally relies on both internal determinants as well as external factors as explanation. Internal determinants are social, economical or political characteristics that put pressure on the system to introduce innovative policies. Diffusion can be understood as an external factor. As Berry/Berry (1990) state, these two groups should be integrated in a coherent study of policy innovation. Earlier diffusion studies mainly looked at geographical proximity as relevant for diffusion (Walker 1969, Berry/Berry 1992)<sup>8</sup>. The central idea behind this is that exchange and communication is more frequent among neighbors. As a result the diffusion of policies is more likely. Additionally it was tested under which conditions actions of the national government influence the diffusion of a policy across the states (Allen et al. 2004). A more bottom up approach from cities to states was examined by Shipan and Volden (2006). Different expectations of communication channels lead to different models of diffusion. Other studies consider that policy entrepreneurs or successful peers are supportive for the diffusion process (Mintrom 1997, Mintrom/Vergari 1998). Evidence was found that controversial policies spread along ideological peers (Gray 1973, Grossback et al. 2004). A newer wave of research increasingly tries to disentangle various mechanisms such as learning, competition or socializing which drive the diffusion process (Meseguer 2005, Dobbin et al. 2007, Shipan/Volden 2008, Gilardi et al. 2009).

#### **4.1 Policy diffusion and institutions**

Diffusion of policies across states has been found by many scholars in different policy fields and based on different channels and networks. In theories of international relations the sociological institutionalism experiences a renaissance. International governmental and non-governmental organizations are recognized as transmission belts for diffusion. These institutions operate as entities of socialization by putting defining rules for adequate behavior on the members of a society (Tews 2005: 33). Institutions on sub-national level like inter-state or in the present paper inter-cantonal institutions fulfill similar functions. Such institutions usually do not have coercive means but they create an identity and produce norms. In the present setting where cantons possess broad freedom of action, formal or informal norms can be used as advocacy by the government, the administration or other supporters in the cantons. This is in line with the constructivistic argumentation that institutions shape member-state behavior through a process often identified as international socialization (Bearce/Bondanella 2007: 703-704). An actor either adopts some set of norms deliberately to maximize some material payoff, or the actor internal-

---

<sup>8</sup> For an overview of diffusion studies see the annex of Berry/Berry (2007)



izes new values and attitudes through more or less hardwired responses to specific environmental stimuli, or through a re-evaluation of the old values (Johnston 2005: 1014). Studies that use this theory within the setting of federal states can hardly be found. An exception is for example Balla (2001) who finds that states whose insurance commissioners participated in a professional association were more likely to adopt a policy than others. Füglistner (Füglistner 2008) finds in the Swiss health care system a more nuanced picture, where a joint membership in an institution only has an impact if the two cantons are members of a commission where the implementation of a concrete topic is specifically discussed. Steven J. Balla (2001) only observes a single innovation and one single professional association. It can be assumed, that different associations or institutions as well as different innovations have varying impacts on the process of diffusion.

Well-developed institutions are seen as prerequisite for the spread of information about innovations since executives and specialized officials draw upon these peers when developing and selling their policy ideas (Mintrom/Vergari 1998: 146). This understanding follows the tradition of the rationalist community that focuses primarily causal mechanisms such as information provisions and the reduction of transaction costs as strategic tools used among members of these institutions.

Effects of strategic choice and socialization are difficult to disentangle and therefore, one of the two is usually selected. It is often not plausible why one effect is observed and the other is left aside. Added value would only generate the consideration of both effects in one study. Nevertheless, this paper does not aspire to proof which mechanism drives diffusion but that institutions serve as platforms of exchange and socialization and therefore diffusion. To draw a picture that reflects the situation in the field of cantonal energy policy as coherent as possible, I try to show that an institution supports the diffusion of measures with specific characteristics. The different natures of policies or measures are hardly included in diffusion studies (an exception is Makse/Volden 2005). Rogers (2003: 219-266) distinguishes the following policy attributes that predict different rates of adoption: relative advantage, compatibility, complexity, observability, trialability. The reason why the compatibility of a measure is assumed to be relevant in the process of policy diffusion is discussed in the following chapter.

## **4.2 Policy diffusion in the field of energy policy**

Since 1979 the Inter-cantonal Conference of Energy-Directors (ICED) coordinates the cooperation of the cantons in energy questions and represents the common interests towards the Federa-

tion.<sup>9</sup> Parallel the Conference of Cantonal Energy Officials meets more frequently and coordinates practical matters. Decisions like the Model Regulations of the year 2000 are elaborated by the cantonal energy officials and in the end mutually approved by the ICED. One consequence is that such a decision gets the necessary political backing to be integrated in cantonal legislations. Regional conferences of cantonal energy officials are institutions where cantonal officials responsible for energy questions meet on a regular basis. These officials are specialists in their field and part of the cantonal administration. As a result, inter-cantonal cooperation is on this level rather dominated by exchange and cooperation over technical and professional issues and less on political matters. Conferences take place in four Swiss regions. In some regions courses are organized for architects in an administrative union and common forms are used for certain processes. Generally it is the idea to facilitate professionals in the building sector to fulfil their duties since these regions are representing rather functional spaces than the cantons do. It is helpful for professionals if cantons in the same region have congruent regulations. It can be assumed that regulations especially diffuse if innovations are rather of technical character and are adjusting existing regulations. Therefore, they seem consistent with the values and past experiences of a canton. *I hypothesize that networks of officials provide a platform to create common sense in technical questions and practices what leads to the diffusion of measures, which are compatible with the existing regulations.*

In a first step the three selected measures will be tested together in one model to see if we can generally speak of diffusion in the setting discussed above. This approach supposes that the different natures of measures in one policy field are not relevant and can thus be neglected. Afterwards different models will be estimated to disentangle the influence of the policy characteristics on this variable. Following this line of argumentation I expect that diffusion is a driving factor behind the innovation of the measures of Minimum Requirements as well as Insulation and less behind the measure of Electric Energy.

## 5 Data and Methods

For the research on policy adoption one needs to consider both time and space. Event history analysis (EHA) is for this setting currently the method of choice. Discrete EHA models predict the probability of a state adopting a policy in a certain year, given that this has not already happened before. In policy diffusion data is commonly structured in a binary timeseries-cross-section way, where the start of the data is set theoretically. In such a model the state-year is the

---

<sup>9</sup> See <http://www.endk.ch>

unit of analysis while the dependent variable is usually coded as zero if the policy is absent in a year and one if the policy is adopted. The risk set is made up of all states included in the dataset for a particular year that might adopt the policy. Although this approach complicates the determination of the median duration until an event takes place, it allows in a straight forward way the inclusion of time-varying covariates (Box-Steffensmeier/Jones 2004). This gives the opportunity to model the internal determinants as well as external influences flexibly. Binary timeseries-cross-section data can be estimated with logit or probit models as well as with the complementary log-log model. Beck, Katz and Tucker (1998) propose to use the logistic regression since it is the best known out of these models and differences in the results are usually negligible. The maximum likelihood estimation of the coefficients gives information about the expected influence of the variables on the probability of adoption.

Since the research question focuses on the introduction of a policy, cantons that adopted a policy are dropped from the dataset in the subsequent year. Cantons that do not adopt the policy throughout all the years are right-censored and all state-years are coded zero. The consequence is that the data set includes a varying number of observations for each canton. Generalized linear models like logit assume the cases to be independent over time and space. Since this prerequisite can not be achieved with such data, clustering allows for the relaxation of this assumption (Buckley/Westerland 2004: 105).

To test the proposition of cantonal policy adoption we first estimate a model including all the three measures. In a second step a model for each of the policy measures will be estimated for more nuanced predictions. To analyze policy adoptions the theoretical framework proposed by Berry and Berry (2007) including both internal determinants and external effect is used although the emphasis clearly lies on the diffusion variable. The *dependent variable* describes the presence of a particular measure in the cantonal legislation. In the case of new measures this does not need to be a specific law or decree in any case. Either the introduction of a new measure can be amended to an existing law/decreed or the legislation leaves the specification open to the executives.<sup>10</sup> Measures were coded as introduced (1) if the idea of the policy was contained in the jurisdiction. Collected are the ideas and not necessarily the exact limits like proposed in the Model Regulations. All the measures need a legal foundation in the cantons. Data has therefore been collected from the cantonal laws and decrees from 1990 to 2007 for all the cantons except

---

<sup>10</sup> In the policy field at hand new measures in the cantons need to be in most cases explicitly integrated in the building or the energy law.

Ticino.<sup>11</sup> The starting point of 1990 is chosen because no inter-cantonal agreements existed before this period. Enough cases exist therefore to see the impact of diffusion pre and post to the Model Regulations. As the point of introduction, the year of the adoption by the relevant legislative body was chosen. The implementation in practice is at this stage not given and might happen immediately, with a certain lag or even at no time.<sup>12</sup>

The set of *explanatory variables* is consisting of external factors as well as of internal determinants. The latter appear in the form of control variables. In order to test the hypothesis the influence of the network of cantonal officials is introduced as external factor (diffusion variable). These networks are the regional conferences of technical officials that regularly take place in four regions (Romandie, Central-, Eastern- and Northwestern Switzerland)<sup>13</sup>. Following the survey of cantonal legislation of the dependent variable, the diffusion variable counts the proportion of cantons of the same regional conference that have introduced the relevant measure until the state-year at stake. This refers to the standard approach of creating a diffusion variable. The higher the proportion the higher is the probability that a canton adopts the measure of interest. In the estimation of the model including all the measures, the diffusion variable is constructed in the same way and refers to the proportion of adoption of the same measure in the cantons of the region. Additionally to this variable of interest I assume that a stronger share of left parliamentarians in a canton (share of seats occupied by left parties), higher energy prices (average price of fuel) and colder climatic conditions (number of heating degree days) increase the probability to adopt a measure in the present policy field. Contrary it is less likely that measures will be adopted in an election year or the year previous to an election. As theoretically supposed and due to economies of scale, higher resources to overcome obstacles lead to a higher probability of innovation. The availability of resources is operationalized with the cantonal gross domestic product (nominal GDP) and the size of the cantonal energy office (full-time equivalents). Further, dummies for the presence of policies, which are expected to support the adaptation of the measures at hand, are added. I expect that if cantons act as role model in the building sector, the introduction of a new legislature is facilitated. Time and the acceptance of a cantonal energy law in the state year are added. The probability that a measure is introduced is assumed to be higher in the year a cantonal energy law is passed or generally replaced. An innovation must be

---

<sup>11</sup> The canton of Ticino is not a member of a regional conference in the energy sector. Therefore, it drops out of the estimation.

<sup>12</sup> Specialists from this policy field ensured, that these measures were generally implemented with the general delay. In this case the legislature on federal level is very broad (EWG - see Chapter 4.2). This leaves it open to the cantons which measures they want to introduce and which not. A different picture resulted with some attempts by the Federation in the early nineties, when concrete measures on the heating of houses for example were formulated but rarely executed by the cantons.

<sup>13</sup> The table of membership can be found in the annex on page 8.

seen in a general context of the policy field and less as a single standing measure. To account for time-dependence I rely on the cubic time polynomial approach proposed by Carter and Signorino (2006) in which a time counter, its square and cubic term is included in the model. All these internal determinants are controlling for endogeneity.

In policy diffusion studies the dependent variable is generally time-lagged. Since the dependent variable is the introduction of a measure by the legislative body the influence of the explanatory variables has to be considered differently in the process of decision-making. Whether entities learn from each other or copy each other, the influence is expected to affect the policy-making process in the stages of agenda-setting or the policy formulation and not just in decision making or the final decision. Except from the control variable it is assumed that a general lag of one year therefore seems appropriate.

Data is analyzed with the familiar model of a logistic regression by using Stata 10.0. Although the maximum likelihood coefficients of a logit estimation are difficult to compare, it gives the possibility to discuss the signs of the coefficients and the level of significance.

## **6 Discussion of Results**

The fact that policy diffusion between cantons is present in Switzerland has been proved by different studies (see chapter 4). Whether a diffusion process drives the adaptation of cantonal electricity and energy-policy measures in Switzerland is the first question to be answered. Examined along the regional exchange of officers and with three different measures that target energy and electricity consumption in the building sector, I test if measures with different characteristics exhibit different patterns of diffusion. All models were estimated with logit. Additional tests were conducted with probit, cloglog and rare-event logit but no major changes were witnessed among the different models. The test with different methods allows being confident with the results regarding methodological differences.

The estimation with all the measures considered as equal shows that diffusion of policies among cantonal officials matters (see Table 1). The higher the proportion of cantons in a region that have introduced a measure of interest, the higher is the probability that a canton in the same region will adopt this measure. I did not make an assumption about the shape of the curve but a positive trend was expected. As a consequence it can be assumed that this institution creates a common sense in technical questions and practices. Apart from the significant positive effect of regional diffusion other variables turn out to be relevant for the adaptation. Cantons with a strong left in the parliament are more willing to introduce innovations in the field of energy

policy. This makes sense since the strongest opponents, the Homeowner Association, has its representatives among the conservatives. The Model Regulations set by the ICED have a positive impact on the adoption of measures. Measures are less adopted in election years or the previous year, although the coefficient is not significant. The impact of diffusion in the field of cantonal energy policy, what is proofed here, is the first step to answer the research question.

Table 1: Logit analysis of the probability that a canton adopts a measure in the field of energy policy (maximum-likelihood estimates)

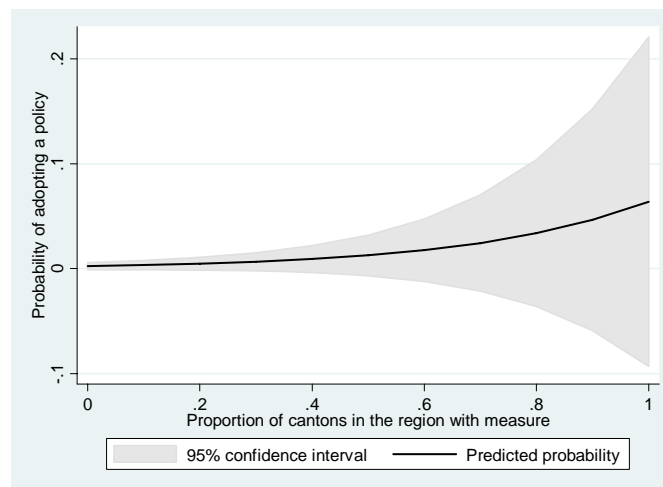
Variable	Total „Baseline“		Total „Regional Diffusion“	
	MLE	SE	MLE	SE
regional diffusion			5.97***	0.97
model regulation	3.73**	1.78	5.04**	2.07
left parliament	2.88	1.89	3.05*	1.84
election year	-0.37	0.37	-0.43	0.39
gdp	0.00	0.16	0.11	0.17
agency size	0.00	0.10	-0.06	0.13
role model	0.05	0.60	-0.22	0.63
fuel price	-0.35	0.47	-0.56	0.51
cantonal climate	0.62	1.73	0.72	1.75
Introduction of cantonal energy law	1.26**	0.54	1.43**	0.55
time	0.80	0.63	0.59	0.60
time2	-0.12	0.09	-0.11	0.09
time3	0.00	0.00	0.00	0.00
_cons	-5.60	4.11	-4.42	4.43
N	895		895	
Log-likelihood	-133.84		-115.01	
Wald Chi2 (12/13)	41.58***		67.88***	
Pseudo R2	0.11		0.24	

legend: \* p<.1; \*\* p<.05; \*\*\* p<.01  
Observations clustered on canton-module  
All variables except cantonal energy law and the time variables are time-lagged by one year (t-1)

In a second step the three measures are estimated separately. In Table 4 in the annex the coefficients and the standard errors of the logistic regression are presented. Looking first at the *Minimum Requirements* we can see that regional diffusion takes a positive and significant coefficient. As Figure 1 shows, the predicted probabilities of an adoption will increase as the share of cantons in the network of officials that have adopted a regulation of maximum proportion of

non-renewable energies increase. This appears to be similar to the estimation including all three measures described above. The building sector mainly contains restrictions. While some are very explicit, others, like this measure, leave space for the concrete design of the implementation. Like regulations on insulation for new buildings such a field of regulation is regularly updated. This is more a technical question and a matter of professional training and less a political matter. The result of the model supports the assumption that networks of officials in the field of energy policy create a common sense in technical questions and/or practices. Other prerequisites are considered in the estimation. Although not significant, a strong left in the cantonal parliament supported the adoption while they less tend to happen in election years or the previous year. Cantons with more resources have a higher spirit of innovation. Neglecting the impact of diffusion, it seems to be supportive if a canton acts as a role model and uses higher standards on its own buildings. If diffusion is estimated or not, the probability that Minimum Requirements are introduced is higher if there is a general change in the energy legislation.

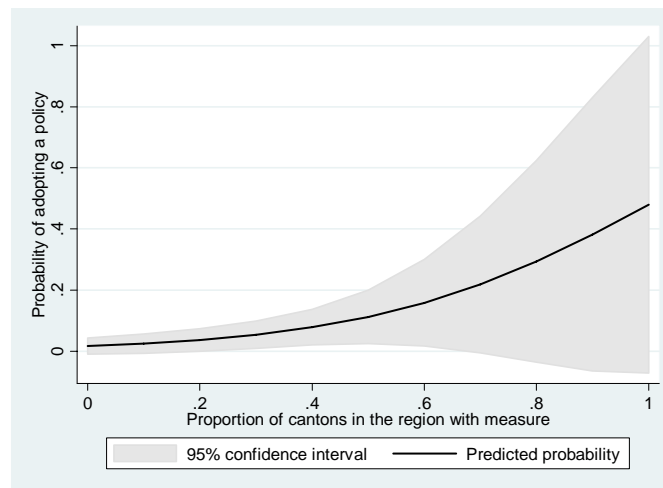
Figure 1: Predicted probability of inventing the measure “Minimum Requirements” under the aspect of regional diffusion



Looking at Figure 2, the central variable of regional diffusion in the estimation of the *Insulation* measure shows a similar picture. Diffusion through this regional institution can be recognized. The mode of a new calculation and higher insulation standards are strongly technical and in most cases compatible with the existing practices and values. The network of energy officials plays the expected role, although the coefficient is only borderline significant. Additionally a strong left in the cantonal parliament supports the adoption while against the expectation high

fuel prices do not. This measure is less adopted in election years or the year previous to an election and is boosted through the Model Regulations. If cantons impose stronger regulations on its own buildings they act as a role model for the adoption of new insulation standards like the adoption of Minimum Requirements. However, this is only the case when the diffusion variable is neglected. The number of cases is significantly different to the other two measures. This is the case because this measure was introduced slightly earlier and in more cantons than the measure of Electric Energy and Minimum Requirements.

Figure 2: Predicted probability of inventing the measure “Insulation” under the aspect of regional diffusion

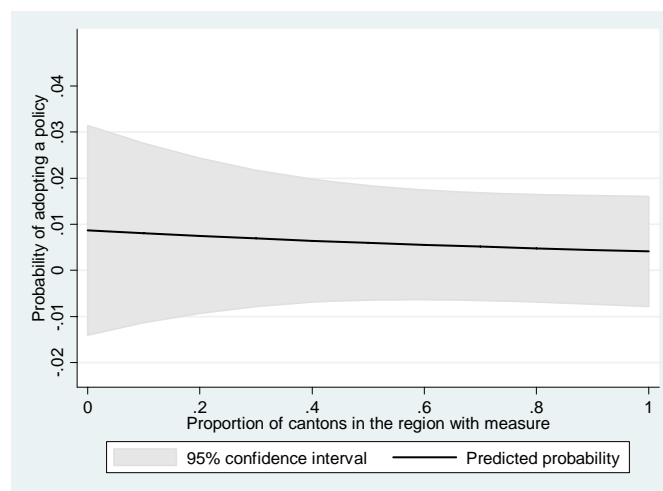


The estimation of *Electric Energy* shows a different picture. The probability of adopting regulations on the electricity consumption of large-scale consumers varies only weakly and in a lightly negative direction with the share of cantons in the network of officials that have adopted the measure (see Figure 3). This is in line with the hypotheses since this measure is not compatible with the existing regulations and because it additionally targets beside new large-scale consumers also the ones that renovated or converted their buildings. Following these findings, it can be stated that regional conferences of energy officials drive the diffusion of technical measures that prove to be compatible with the previous regulations. Nevertheless, cantons introduce this measure what lets us emphasize the internal determinants in the baseline model. Looking at the estimation in Table 4 the impact of the Model Regulations is remarkable. The ideas of Electric Energy were introduced in not one canton before the launch by the ICED in 2000. The Model Regulations generally include measures that were already in practice in some cantons and



proved their efficiency and feasibility. The inclusion of this proposal obviously encouraged the cantons without a test case in another canton. Either the innovation was entirely new or the needed backing was missed before 2000. While a large cantonal energy agency seems to support the introduction of limits for large consumers' electricity use, it is the opposite with the general financial situation in a canton. Like in other cases, the probability of an adoption is higher in years a cantonal energy law is passed or generally revised.

Figure 3: Predicted probability of inventing the measure “Electric Energy” under the aspect of regional diffusion



While the tested institution is only driving diffusion in the two cases of technical and compatible measures, the internal determinants show – as explained above – a diverse picture. Although not significant in all cases, some trends over the three models can be identified. There obviously is a difference in the belief systems in the field of energy policy between left and right politicians as Kriesi and Jegen (2001) described. As expected and also apparent in the common estimation in Table 2, left parties generally exert a positive influence on the adoption of measures in this policy field. This happens either through their support in the launch of the policy process or at the stage of decision. The same is the case with the climatic situation although this variable might rather serve as a proxy for the general trend of the public openness towards regulations of energy questions. Also valid for all measures is the positive effect that the introduction of the Model Regulations exerts on the adoption. This underlines that the agreement over such regulations on an inter-cantonal level serves its purpose of standardization of cantonal energy measures. While no explanation can be found why the impact of the cantonal resources differs be-

tween the two types, the size of the energy agency is relevant for the introduction of that measure that draws on the resources of this administrative body.

Additional analysis was conducted to verify that the supposed operationalization for regional diffusion does not stand for another kind of diffusion. The cantons in the regional conferences often border each other. In addition, one institution (Romandie) stands for a language region while the other three regions are counted as German speaking. For this reason, one has to be careful not to classify the effects to the wrong kind of diffusion. Diffusion in language regions and neighborhood diffusion were therefore estimated as well. No positive and significant coefficient was detected for any of these estimations. Although the nationally set Model Regulations prove to be important for cantonal adoption, the estimation of national diffusion does not display significant coefficients. Due to the limitation of space these analysis are not reported in this paper.

## **7 Conclusion**

Consistent with other studies in this field, it is argued that institutions play a crucial role in the diffusion of policies. The analysis shows that cantons all over the country adopted some of the measures at stake. Looking across all three measures in a common model, the estimation shows that the inter-cantonal institution of energy officials drives the process of diffusion among its member cantons. These findings are consistent with the past work in the field of policy diffusion which proves that both internal determinants as well as diffusion effects are important for the adoption of new policies (for example Mintrom 1997, Mintrom/Vergari 1998, Kübler/Widmer 2007). The results of this paper support the assumption that in the field of energy policy the networks of officials create common understanding and practices. The inclusion of three measures strengthens the generalizability of the results for the policy field covered here. This is in line with the assumed trend of increasing cooperation between the Swiss cantons. With the aim to disentangle the impact of an institution on the diffusion of measures with different characteristics I argued to obtain unequal patterns of diffusion. The differentiation of the measures was made along the line of compatibility with the existing legislation. The probability that a compatible innovation is adopted because of a diffusion effect is higher than incompatible innovations. The tested measure being entirely new to the present values seems to get more influenced by the launch of the Model Regulations. To deepen the findings of the first part it can be concluded that the networks of officials in the field of energy policy create common sense in technical questions and/or practices.

Apart from the diffusion effects this study also discussed the internal determinants as prerequisites for policy adoption. The results reflect the general picture that left parties support the adoption of these measures while they are less introduced in the shadow of an election. Politicians obviously play at least in the timing of the introduction a relevant role. A lack of political will can be partly recognized. The available resources in a canton, if in total or concretely in form of the agency size, are relevant for the adoption of new measures. Model Regulations turned out to be supportive in all cases. The significance of the Model Regulations set by the Inter-cantonal Conference of Energy Directors as well as the regional institutions as promoters of policy adoption underlines their importance in Swiss federalism. Different aspects are therefore supporting the adoption of measures in the system of “Implementation by federal delegation” in Switzerland. Already Kübler and Widmer (2007: 217) underlined the value of modeling the interactions of the cantons in form of diffusion effects in the federal setting.

The institutionalized cooperation of cantonal officials fulfills its task in the field of technical matters and adaptation of common measures as expected. For more delicate innovations this analysis found that Model Regulations trigger cantonal adoption. It should be aspired to identify if there are other diffusion patterns, for example through ideological channels, which support the adoption of measures of this nature. What likewise stays unclear is the concrete process within networks or institutions that has been proclaimed through the results of the estimations. As explained in chapter 4.1, socialization might happen due to the process proposed by rationalist or constructivist scholars. This is strongly linked to the critics placed by Braun et al. (Braun et al. 2007) that the emphasis of policy diffusion research should lay more on the dynamics behind the diffusion of policies. The Swiss cantons are linked to the industry of electricity production. If this influences the regulations is a question that needs to be considered as well as the impact of different lobbies.

One elementary finding of this research project is that institutions matter in the field of energy policy diffusion. The attention has often been pointed towards this gap (Walker 1969, Berry/Berry 2007) but seldom policy diffusion researchers tried to fill it (exceptions are Balla 2001, Füglistner 2008). Additionally, this study contributes to the growing body of diffusion research with the finding that different measures in one policy field, conditionally on their nature and characteristics, are adopted due to different internal determinants and external influences. In some cases Al Gores declared political will might lack. Nevertheless, the Swiss peculiarity of “implementation by federal delegation” decelerates the process of policy making.

## 8 Appendix

Table 2: Members of the Regional Conferences of Energy Officials

Region	Cantons
Romandie	Berne, Fribourg, Geneva, Jura, Neuchatel, Valais, Vaud
Central	Lucerne, Nidwalden, Obwalden, Schwyz, Uri, Zug
East	Appenzell Ausser Rhoden, Appenzell Inner Rhoden, Glarus, Grisons, Schaffhausen, St. Gallen, Thurgau, Zürich
Northwest	Aargau, Basle-Land, Basle-Stadt, Berne, Solothurn

Ticino is not a member of any of these networks.

Table 3: Summary Statistics for Explanatory Variables and Control Variables

Variable	Code	Mean	Standard Deviation	Data Source
Regional diffusion (Minimum Requirements)	regional diffusion	0.17	0.27	Cantonal legislation, own calculation
Regional diffusion (Insulation)	regional diffusion	0.50	0.40	Cantonal legislation, own calculation
Regional diffusion (Electric Energy)	regional diffusion	0.14	0.20	Cantonal legislation, own calculation
Model regulation	model regulation	0.41	0.49	Inter-cantonal Conference of Energy-Directors
Left parliament	left parliament	0.27	0.13	Année Politique Suisse (diverse volumes)
Election and pre-election year	election year	0.52	0.50	Année Politique Suisse (diverse volumes)
Nominal GDP	gdp	1.54	1.91	BAK Basel Economics
Size of energy agency	agency size	2.93	2.77	Stand der Energiepolitik in den Kantonen (diverse volumes)
Canton as role model	role model	0.27	0.45	Correspondence with Energho
Energy price	fuel price	5.32	1.37	Swiss Federal Statistical Office (FSO)
Climatic conditions	cantonal climate	2.15	0.16	Federal Office of Meteorology and Climatology
Introduction of cantonal energy law	cant energy law	0.05	0.22	Cantonal legislation

Table 4: Logit analysis of the probability that a canton adopts a measure in the field of energy policy (maximum-likelihood estimates)

Variable	Minimum Requirements „Baseline“		Minimum Requirements „Diffusion“		Insulation „Baseline“		Insulation „Diffusion“		Electric Energy „Baseline“		Electric Energy „Diffusion“	
	MLE	SE	MLE	SE	MLE	SE	MLE	SE	MLE	SE	MLE	SE
regional diffusion			3.99**	1.58			3.37*	1.93			-0.56	1.84
model regulation	0.33	3.99	1.08	4.14	9.18**	3.66	10.17**	4.31	†		†	
left parliament	2.61	3.85	4.21	3.49	7.15**	2.83	6.14**	2.73	5.42	4.57	5.93	4.73
election year	0.61	0.68	0.57	0.71	-1.24**	0.56	-1.14**	0.55	-1.14	0.75	-1.19*	0.70
gdp	0.73**	0.35	0.70*	0.36	0.48	0.52	0.41	0.59	-0.58**	0.27	-0.59**	0.25
agency size	0.02	0.17	0.07	0.16	-0.33	0.25	-0.35	0.26	0.74*	0.40	0.75*	0.40
role model	2.25**	1.10	2.13	1.36	2.56**	1.21	1.93	1.42	-1.29	1.35	-1.24	1.45
fuel price	-0.66	1.10	-0.72	1.15	-1.76**	0.89	-1.92*	1.08	1.13	1.63	1.12	1.62
cantonal climate	3.71	3.34	4.06	3.36	-0.43	2.61	0.42	2.82	4.14	4.05	4.04	4.27
cant energy law	2.57***	0.96	2.91***	1.08	-0.95	0.91	-0.91	1.07	3.93**	1.61	3.96**	1.57
time	4.89	6.38	7.65	7.35	1.91**	0.89	1.01	0.82	96.49	73.45	95.34	75.21
time2	-4.45	7.05	-7.19	7.93	-3.44**	1.58	-2.40*	1.45	-61.38	50.17	-60.43	51.74
time3	13.69	23.35	21.36	25.92	13.91**	6.59	9.54	6.19	127.23	113.10	124.78	117.44
_cons	-29.65*	17.60	-39.36*	21.74	2.66	8.04	3.46	8.90	-519.16	362.12	-514.82	368.20
N	319		319		192		192		355		355	
Log-likelihood	-33.87		-32.47		-45.62		-43.87		-21.68		-21.66	
Wald Chi2 (11/12)	72.58***		52.91***		53.90***		51.17***		93.55***		143.89***	
Pseudo R2	0.41		0.43		0.33		0.36		0.52		0.52	

legend: \* p<.1; \*\* p<.05; \*\*\* p<.01

† : model regulation = 0 never predicts an event

Observations are clustered on cantons

All variables except cantonal energy law and time variables are time-lagged by one year (t-1)

## 9 References

- Allen, Mahalley D./Pettus, Carrie/Haider-Markel, Donald P. (2004): Making the National Local: Specifying the Conditions for National Government Influence on State Policymaking. *State Politics and Policy Quarterly* 4(3), 318–344.
- Balla, Steven J. (2001): Interstate Professional Associations and the Diffusion of Policy Innovations. *American Politics Research* 29(3), 221–245.
- Bearce, David H./Bondanella, Stacy (2007): Intergovernmental Organizations, Socialization, and Member-State Interest Convergence. *International Organization* 61(04), 703–733.
- Beck, Nathaniel/Katz, Jonathan N./Tucker, Richard (1998): Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable. *American Journal of Political Science* 42(4), 1260–1288.
- Berry, Frances Stokes/Berry, William D (1990): State lottery adoptions as policy innovations: an event history analysis. *American Political Science Review* 84(2), 395–415.
- Berry, Frances Stokes/Berry, William D. (1992): Tax Innovation in the States: Capitalizing on Political Opportunity. *American Journal of Political Science* 36(3), 715–742.
- Berry, Frances Stokes/Berry, William D. (2007): Innovation and Diffusion Models in Policy Research. In: Sabatier, Paul A. (Ed.): *Theories of the Policy Process*. 2nd Edition. Boulder: Westview Press, 223–260.
- Bochsler, Daniel/Koller, Christophe/Sciarini, Pascal/Traimond, Sylvie/Trippolini, Ivar (2004): *Die Schweizer Kantone unter der Lupe. Behörden, Personal, Finanzen*. Bern: Haupt.
- Box-Steffensmeier, Janet M./Jones, Bradford S. (2004): *Event History Modeling. A Guide for Social Scientists*. Cambridge: Cambridge University Press.
- Braun, Dietmar/Gilardi, Fabrizio/Füglister, Katharina/Luyet, Stephan (2007): Ex Pluribus Unum: Integrating the Different Strands of Policy Diffusion Theory. In: Holzinger, Katharina/Jörgens, Helge/Knill, Christoph (Ed.): *Transfer, Diffusion und Konvergenz von Politiken*. Politische Vierteljahresschrift Sonderheft 38, 39–55.
- Buckley, Jack/Westerland, Chad (2004): Duration Dependence, Functional Form, and Corrected Standard Errors: Improving EHA Models of State Policy Diffusion. *State Politics and Policy Quarterly* 4(1), 94–113.
- Carter, David B./Signorino, Curtis S. (2006): Back to the Future: Modeling Time Dependence in Binary Data, Online: <http://www.polisci.umn.edu/pdf/CarterSignorino2006-2.pdf> [14.08.2009].
- Dobbin, Frank/Simmons, Beth/Garrett, Geoffrey (2007): The Global Diffusion of Public Policies: Social Construction, Coercion, Competition, or Learning? *Annual Review of Sociology* 33, 449–472.
- Faganini, Hans Peter (1991): *Föderalistischer Aufgabenverbund in der Schweiz*. Bern: Haupt.

- Feld, Lars P. (2006): Regulatory Competition and Federalism in Switzerland: Diffusion by Horizontal and Vertical Interaction. *Crema Working Paper* 2006-22. Basel.
- Füglister, Katharina (2008): Do institutions matter for policy diffusion in federal states? Evidence from health care policy in Switzerland. 66th MPSA National Conference. Chicago, April 3-6 2008.
- Fuglseth, Bente Beckstrøm (2008): Driving Forces and Barriers to Improved Energy Performance of Buildings. An Analysis of Energy Performance of Swedish Buildings, 2000–2006. *FNI Report* 5/2008.
- Gilardi, Fabrizio/Füglister, Katharina (2008): Empirical modeling of policy diffusion in federal states. The dyadic approach. *Swiss Political Science Review* 14(2), 1-35.
- Gilardi, Fabrizio/Füglister, Katharina/Luyet, Stéphane (2009): Learning From Others: The Diffusion of Hospital Financing Reforms in OECD Countries. *Comparative Political Studies* 42(2), 549 - 573.
- Gray, Virginia (1973): Innovation in the States: A Diffusion Study. *The American Political Science Review* 67(4), 1174-1185.
- Grossback, Lawrence J./Nicholson-Crotty, Sean/Peterson, David A. M. (2004): Ideology and Learning in Policy Diffusion. *American Politics Research* 32(5), 521-545.
- Johnston, Alastair Iain (2005): Conclusion and Extensions: Toward Mid-Range Theorizing and Beyond Europe. *International Organization* 69(4), 1013-1044.
- Karch, Andrew (2006): National Intervention and the Diffusion of Policy Innovations. *American Politics Research* 34(4), 403-426.
- Kissling-Näf, Ingrid/Wälti, Sonja (2007): The implementation of public policies. In: Knoepfel, Peter/Kriesi, Hanspeter/Linder, Wolf/Papadopoulos, Yannis/Sciarini, Pascal (Ed.): *Handbook of Swiss Politics*. 2nd Edition. Zürich: Neue Zürcher Zeitung, 501-524.
- Kriesi, Hanspeter/Jegen, Maya (2001): The Swiss energy policy elite: The actor constellation of a policy domain in transition. *European Journal of Political Research* 39(2), 251-287.
- Kübler, Daniel/Widmer, Thomas (2007): Subnationale Unterstützung eines Drogenprogramms. Eine Panelanalyse mit Ereignisdaten in den Schweizer Kantonen. In: Holzinger, Katharina/Jörgens, Helge/Knill, Christoph (Ed.): *Transfer, Diffusion und Konvergenz von Politiken*. Politische Vierteljahresschrift Sonderheft 38, 200-220.
- Linder, Wolf (1999): *Schweizerische Demokratie. Institutionen - Prozesse - Perspektiven*. Bern: Haupt.
- Madlener, Reinhard (2007): Innovation diffusion, public policy, and local initiative: The case of wood-fuelled district heating systems in Austria. *Energy Policy* 35(3), 1992-2008.
- Makse, Todd/Volden, Craig (2005): The Role of Policy Attributes in the Diffusion of Policy Innovations. Southern Political Science Association Annual Conference. Atlanta/Georgia, January 5-8, 2006.

- Meseguer, Covadonga (2005): Policy Learning, Policy Diffusion, and the Making of a New Order. *Annals of the American Academy of Political and Social Science* 598, 67-82.
- Mintrom, Michael (1997): Policy Entrepreneurs and the Diffusion of Innovation. *American Journal of Political Science* 41(3), 738-770.
- Mintrom, Michael/Vergari, Sandra (1998): Policy Networks and Innovation Diffusion: The Case of State Education Reforms. *The Journal of Politics* 60(1), 126-148.
- Nässén, Jonas/Sprei, Frances/Holmberg, John (2008): Stagnating energy efficiency in the Swedish building sector--Economic and organisational explanations. *Energy Policy* 36(10), 3814-3822.
- Rieder, Stefan (1998): *Regieren und Reagieren in der Energiepolitik. Berner Studien zur Politikwissenschaft* 5. Bern Haupt.
- Rieder, Stefan/Walker, David (2009): *Wirksamkeit von Instrumenten zur Steigerung der Energieeffizienz und zur Förderung erneuerbarer Energien*. Bern: Bundesamt für Energie BFE.
- Rogers, Everett (2003): *Diffusion of Innovations*. 5th ed. New York: Free Press.
- Sager, Fritz (2003): Kompensationsmöglichkeiten föderaler Vollzugsdefizite. Das Beispiel der kantonalen Alkoholpräventionspolitiken. *Swiss Political Science Review* 9(1), 309-333.
- Sager, Fritz/Rüfli, Christian (2005): Die Evaluation öffentlicher Politiken im föderalistischen Vollzugsarrangement. Eine konzeptionelle Erweiterung des Stufenmodells und eine praktische Anwendung. *Swiss Political Science Review* 11(2), 101-129.
- Schaltegger, Christoph A. (2004): Finanzpolitik als Nachahmungswettbewerb: Empirische Ergebnisse zu Budgetinterdependenzen unter den Schweizer Kantonen. *Swiss Political Science Review* 10(2), 61-85.
- Shipan, Charles R./Volden, Craig (2006): Bottom-up Federalism: The Diffusion of Antismoking Policies from U.S. Cities to States. *American Journal of Political Science* 50(4), 825-843.
- Shipan, Charles R./Volden, Craig (2008): The Mechanism of Policy Diffusion. *American Journal of Political Science* 52(4), 840-857.
- Simmons, Beth A./Elkins, Zachary (2004): The Globalization of Liberalization: Policy Diffusion in the International Political Economy. *The American Political Science Review* 98(1), 171-189.
- Tews, Kerstin (2005): Die Diffusion umweltpolitischer Innovationen: Eckpunkte eines Analysemodells. In: Tews, Kerstin/Jänicke, Martin (Ed.): *Die Diffusion umweltpolitischer Innovationen im internationalen System*. Wiesbaden: VS Verlag.
- Vatter, Adrian (2007): Federalism. In: Knoepfel, Peter/Kriesi, Hanspeter/Linder, Wolf/Papadopoulos, Yannis/Sciarini, Pascal (Ed.): *Handbook of Swiss Politics*. 2nd Edition. Zürich: Neue Zürcher Zeitung, 77-100.



- Volden, Craig/Ting, Michael M./Carpenter, Daniel P. (2008): A Formal Model of Learning and Policy Diffusion. *American Political Science Review* 102(3), 319-332.
- Walker, Jack L. (1969): The diffusion of innovations among the American states. *American Political Science Review* 63(3), 880-899.
- Widmer, Thomas/Rieder, Stefan (2003): Schweizer Kantone im institutionellen Wandel. Ein Beitrag zur Beschreibung und Erklärung institutioneller Reformen. *Swiss Political Science Review* 9(1), 201-232.
- Wüstenhagen, Rolf/Markard, Jochen/Truffer, Bernhard (2003): Diffusion of green power products in Switzerland. *Energy Policy* 31(7), 621-632.