Intergovernmental cooperation in a dynamic environment: An analysis of the development of intergovernmental agreements and its explanations in subnational Switzerland

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Abstract: In 2008, the Neugestaltung des Finanzausgleichs und der Aufgabenteilung zwischen Bund und Kantonen (NFA) took effect and through it Switzerland’s intercantonal cooperation was strengthened in selected policy areas. The corresponding revised articles of the constitution even stipulate federal instruments to force cantons to enter into intercantonal agreements. While the new provisions can be judged as safeguards against national centralization, especially cantonal legislatures periodically expressed serious reservations about a further empowerment of institutions of horizontal resp. executive federalism. Two questions are crucial in this debate: Has the reform really resulted in a denser net of intercantonal agreements? And if so, how did the cantonal legislatures react to the increased institutionalization and importance of the so-called concordats? The paper is able to answer the first question by investigating the development of intercantonal agreements in Switzerland, especially for the recent period since the NFA took effect. It is further able to draw deeper insights into the working of intercantonal contractual cooperation. Thereby, updated data on the intensity of intercantonal cooperation is presented and analyzed. Two major findings result: The NFA did not result in an increase of intercantonal agreements, and intercantonal contracting is mainly driven by functional and only subordinately by political-institutional and partisan factors. The paper will close with an outlook on how to tackle the second question concerning the reaction of the cantonal legislatures to the NFA, i.e. its mere “threat” of further intercantonalization as well as its actual entry into force.

Introduction

When the provision of a good cannot be (efficiently) realized by one actor alone – the central state or a state or local unit – cooperation and collective action is needed to counter the demand. However, group action can also be absent although all potential participants act rational and would gain from cooperation (Olson 1965):

“Indeed, unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interests.” (ibid.: 2; emphasis in original)

Such group behavior can be the case when no one can be excluded from consumption and usage of the public good (ibid.). Free riding increases the payoff of the actor that defects while it conflicts with the group interests and makes the provision of the public good inefficient and in the long term, if every actor applies this strategy, impossible (ibid.). Olson’s (ibid.) central contribution to the topic is the linkage between group size and collective action, stating that the size of the group bearing for and/or making use of a public good is negatively associated with the chance that the optimal amount of it is provided. Coercion or exogenously imposed

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incentives can function as counteraction assuring the provision of the good (ibid.). These theoretical thoughts set the stage, but how about its relevance for the specific field of subnational politics in a federal state like Switzerland?

Following Elazar (1987: 12), “[t]he simplest possible definition [of federalism] is self-rule plus shared rule”. In structural terms federalism is implemented as a system of “[c]ontractual noncentralization” (ibid.: 34), meaning that power is dispersed among many centers – the federal government and the state and local governments – with no hierarchy but lines of communication between the decision making arenas (ibid.: 34ff.). This hints towards a crucial feature of federal systems in particular: intergovernmental relations as means to fulfill a state’s tasks and accomplish societal, political or economic goals. Federalism and intergovernmental relations are inevitably connected (ibid.: 14–18). Whereby the former describes the structural, procedural and cultural framework, the latter is one of the mechanisms that maintain and guarantee the functioning of the system (ibid.: 154ff.).

Turning to the case of Switzerland, we see that these established theoretical considerations are of high current relevance, in academic as well as in practical terms. Switzerland counts as a prime example of a federal and decentralized state (Lijphart 2012). But not only in structural terms, also in procedural and in (federal) political cultural terms it is classically evaluated as a prototype of a state providing constitutionally entrenched rights to territorially defined segments of the population (Elazar 1987: 64–79). Thus, power is (vertically) dispersed with the states – the Swiss cantons – being responsible for all tasks not assigned to the federal level (Art. 3 Cst²) or voluntarily devolved to the local level (Art. 50 Cst). However, cooperation across and within state layers – intergovernmental cooperation – is a common mean of policy making also in Switzerland (Vatter 2016: 441ff.). Thereby, especially the field of intercantonal cooperation is highly relevant although contested. The Neugestaltung des Finanzausgleichs und der Aufgabenteilung zwischen Bund und Kantonen, in short, NFA, in force since 1 January 2008, highlights this and will be a point of reference of this paper because we expect it to be of high relevance for the dynamics within Swiss subnational politics. As one of three pillars, the NFA strengthened intercantonal cooperation (Art. 48 Cst), especially with respect to such that requires a sharing of the burdens arising from the provision of goods and services (Art. 48a Cst). New federal instruments were constitutionally enshrined that can be used to coerce cantons to not only use goods and services provided by other cantons but also to contribute to its production (ibid.). Simultaneously, horizontal cooperation among the Swiss cantons is described to be highly institutionalized as well as highly integrated (Bolleyer 2009). Up to 2005 a steady increase of intercantonal agreements – next to intercantonal conferences the central institution of Swiss horizontal federalism – was observed (Bochsler and Sciarini 2006). On the basis of this finding it is forecasted that the NFA would even boost the intensity of intercantonal contracting (ibid.: 36). However, barely anything is known about intercantonal cooperation in the post-NFA period. This paper therefore asks a threefold research question:

What effect did the NFA have on the number of intercantonal agreements and what is the current state of intercantonal contracting? Why do cantons cooperate, generally as well as in the specific cantonal policy areas? What effect did the NFA have on the executive-legislative relations within the cantons?

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² Cst is used as the abbreviation denoting the Federal Constitution of the Swiss Confederation throughout the whole article.
The empirical analysis examines the current state of intercantonal contracting between the 26 Swiss cantons, using new original data collected from cantonal sources. By means of a descriptive analysis and by comparing the results to previous investigations that asked similar research questions the development of intercantonal cooperation is studied. Secondly, explanations of cooperation are tested using cross-sectional regression analysis on the single units as well as the Quadratic Assignment Procedure (QAP) on dyadic data of intercantonal contracting. The main findings are that the NFA has not fundamentally altered intercantonal cooperation. Rather, it consolidated a condition of intense contracting between the Swiss cantons. Furthermore, the multivariate analyses reveal that intercantonal cooperation is mainly driven by structural factors and takes place within functional areas, while also political variables, such as the power relation between the executive and the legislative branch or the ideological stance of the cantonal executives, matter. The study contributes to our understanding of the development and state of intercantonal cooperation and the mechanisms that drive it. It advances Bochsler’s (2009) analysis on the topic by not only testing his findings for the most recent point in time but also by applying a theoretical framework that was developed for aims such as we pursue. The concluding remarks will prepare the floor for further analyses on the role of subnational parliaments within intercantonal cooperation.

**Horizontal Institutions of Swiss Federalism**

Before we turn to the framework and theory that the later analyses are drawn upon, we define the central research object. The institutions of Swiss federalism can be distinguished into vertical and horizontal polities (Vatter 2016: 459ff.). We are interested in the horizontal institutions of Swiss federalism that are the central aspect when dealing with intergovernmental relations within the political system of Switzerland (Pfisterer 2015). Thereby, two polities stand out: intercantonal conferences and intercantonal agreements (ibid.: 468–472). Conferences bring members of cantonal executives or experts from cantonal ministries together, either clustered by and, thus, composed after region or policy area to which the representatives can be assigned to. Conferences constitute the informal part of intergovernmental cooperation (Elazar 1965: 13) and serve their members as platforms to exchange information and as means for consultation, coordination as well as internal and external opinion formation (Häfelin 1969: 43).

In contrast, agreements between governmental units account as the formal part of intergovernmental cooperation (Elazar 1965: 13). This holds true for intercantonal agreements as the second horizontal institution of Swiss federalism. Intercantonal agreements, also known as *concordats*, are contracts between at least two cantons that address a policy area that lies in the sole cantonal competence (Häfelin et al. 2016: 375). Thus, a task that is constitutionally guaranteed as cantonal self-rule is addressed by shared and multilateral subnational action. The literature differentiates between two types of agreements. First, an intercantonal agreement can be a legal transaction and can constitute a legal relationship between two parties (*rechtsgeschäftlich*) (ibid.). An example is the case of an administrative task that is tackled by joint action and mutual coordination. The second type of intercantonal agreements results in a unification of law (*rechtssetzend*) (ibid.). This is the case when at least two cantons indirectly or directly legislate through the conclusion of an intercantonal agreement. However, intercantonal agreements are not new to the political system of Switzerland, but their function has changed over time. During the rule of the loose confederation they served as an instrument.
to centralize and regulate legal areas that were vacant (Schaumann 1961: 89). Since the foundation of the Swiss federation in 1848 they have rather been used as a means to preserve cantonal self-rule and protect the subnational entities against central state interference (ibid.).

All in all, intercantonal agreements count as the most important element within the horizontal and cooperative federal system of Switzerland (Häfelin et al. 2016: 375), and were further strengthened by the revision of the respective constitutional article in the course of the NFA.

Framework, Theory and Hypotheses: Institutional Collective Action, its Origins and Effects

To explain the factors that drive cooperation among subnational units, we draw on a theoretical framework of institutional collective action. This framework will later be applied to the institutional setting of Swiss federalism.

Framework: Cooperation and Institutional Collective Action

Solutions for collective action problems within a structure of (lower) level autonomy, whether due to decentralization or federalization, seem obvious, e.g. privatization of the commons through private property rights or central state regulation through a grand state solution (Hardin 1968). Ostrom (1990) takes up these propositions and shows in contrast, that problems of common resource and free riding can durably be solved by self-government, depending on specific conditions that must be met, e.g. self-determined operational rules as well as systems of monitoring and sanctioning (ibid.: 192ff.). Based upon these conditions and derived from case studies, the author proposes a model for analyzing institutional choice under common resource problems by taking specific internal and external factors related to institutional-choice situations – characteristics of the common resource problem and the collaborators – into account (ibid.: 192ff.). The model is refined towards the Institutional Analysis and Development (IAD) framework that not only addresses individual behavior on common resource problems but all kinds of institutional-choice situations (Ostrom et al. 1994: 25). According to the IAD framework every action arena is determined by three exogenous variables: general rules, characteristics of the matter that is acted upon, and characteristics of the community within which interaction takes place (ibid.: 37ff.). The action arenas themselves are the room in which the participants interact in specific action situations and, thus, are the inner stage of analysis (ibid.: 29ff.). The seven internal variables determining the interaction are as follows: the participants, the positions they take, the actions they undertake, the possible outcomes, the linkages between action and outcome, informational resources and cost and benefit calculations (ibid.). As an example of an action situation, Ostrom (2005: 32) later considers negotiations by state executives over international agreements.

The theoretical and definitional considerations made so far set the stage. Fragmentation of political authority is the core of federalism but it is also the source of major contestation. It means autonomy but does not rule out cooperation. Thereby, self-government and self-organization can be effective and efficient means of providing common goods, but demand specific conditions and factors to be present. The Institutional Collective Action (ICA) framework, mainly developed by Feiock (2009, 2013), builds on problems as discussed – noncentral political systems and economic problems of public good provision like diseconomies of scale, spill-overs and common resource coordination – and asks for mechanisms to resolve these collective action dilemmas. It is directly derived from the
presented work of Ostrom (1990, 2005). The ICA framework describes political mechanisms that approach varying collective action dilemmas and demonstrates under which conditions institutional collective action is more or less feasible (Feiock 2013: 397–398). Mechanisms to overcome institutional collective action dilemmas can be classified due to the degree of autonomy that is kept or given away by each actor (ibid.: 401). The author mainly differentiates between embedded networks, agreements and delegated authority, when analyzing the depth of integration (ibid.: 401–405). As a second dimension, the institutional scope displays the number of actors and functions, that is present when applying a cooperation mechanism (ibid.: 405). It ranges from single issue and bilateral cooperation over intermediate functions and multilateral partners to multiplex issues and collaboration (ibid.: 404–405). Which of the nine resulting mechanisms that derive from these two dimensions fits best depends on the collaboration risk that goes in line with a specific collective action problem (ibid.: 406–407). Feiock (ibid.: 406) states as follows: “The preference of local actors for specific mechanisms to mitigate ICA dilemmas will depend on collaboration risk that reflects the nature of the problem, the preferences and alignments of the actors, and existing institutions that influence the transaction costs local actors face.” Collaboration risk is upstream, thus central to explain the mere occurrence or absence of cooperation, and compiles of coordination, division and defection risk (ibid.: 406–407). Coordination is crucial for the organization of a specific activity, whereas division problems deal with the fair share of gains and benefits that result from a collective action (ibid.). In contrast to these two, the defection risk arises from diverging interests among the collaborating partners and means that a decision of one party to defect can reduce the payoff of all other collaborators (ibid.: 407). To understand the magnitude of the coordination, division and defection problem and the resulting collaboration risk as a whole Feiock (ibid.: 410–415) proposes analyzing three main explanations of it: the character of the collective action dilemma to be solved, the preferences of the potential cooperators – the elites and the populations –, and the overall institutional setting in which the collaboration takes place. The nature of the collective action dilemma defines the scale economies as well as the effort to solve common pool resource problems (ibid.: 410–411). To a large amount, the economic costs of the unsolved status quo as well as the potential gains from cooperation directly derive from the underlying problem. The other two variables approach differently and put the potentially cooperating jurisdictions as well as existing institutions to the center (ibid.: 412–413). Micro- as well as macro-level similarities respectively differences, meaning between the potentially collaborating elites on the one side and within the communities on the other side, can explain the magnitude of the collaboration risk and, thus, the probability that collective action takes place (ibid.: 412). Furthermore, the overall structural context is decisive for realizing cooperation among jurisdictions (ibid.: 412–414). Political superstructures – e.g. the degree of centralization or the existence of mediating and brokering institutions – can strengthen or weaken incentives for collective action.

**Theory, Model and Hypotheses: Factors reducing or enhancing collaboration**

As described above, transaction costs are mainly associated with the mechanism to solve an ICA problem, can be estimated ex-post and, thus, are rather the product of a specific cooperation. The collaboration risk of a collective action stands at its origin and determines the transaction costs that result from the specific mechanism applied to a specific collective action problem under a specific actor constellation. Thus, measuring the collaboration risk lets us assess how possible cooperation is. Next to the ICA dilemma itself, Feiock (2013: 412–414, 415) differentiates between actor and institutional sources of such costs. Preference
distributions between the elites as well as between the underlying citizens within and across entities can further or hinder collaboration. Simultaneously, existing institutions – external rules, political structural variables and mitigation systems – can encourage or discourage cooperation. In the following section, we deduce testable hypotheses based on the assumptions made by the ICA framework by zooming into the theoretical arguments behind the proposed factors. The proceeding will be threefold. The first part will stress the general questions of why a single entity contracts and why it contracts with a specific partner. The second part will deal with explaining collaboration of a single entity in detail and the third section provides specific testable hypotheses on cooperation from a dyadic perspective, meaning, it takes characteristics of pairs of entities into account.

**Homophily and Preference Similarity**

“Similarity breeds connection” (McPherson et al. 2001: 415) – with this summary phrase McPherson et al. begin their study on homogeneity of social networks. They describe their central research object as follows: “Homophily is the principle that a contact between similar people occurs at a higher rate than among dissimilar people” (ibid.: 416). The authors take an investigation of Lazarsfeld and Merton (1978) on the processes of friendship formation as their frame and point of departure. The latter analyze, whether people “tend to over-select similars as friends and, at the extreme, to confine their friendships to individuals of like kind” (ibid.: 27) or, whether heterophily – differences among friends – prevails and explains friendship. Homophily can be categorized into similarity of status – group-affiliations and societal positions – and similarity of values (ibid.: 24). The authors analyze value homophily in depth and can show, that friendship is more frequent among people sharing the same values (ibid.: 24–28) and is more persistent over time, given these similarities (ibid.: 28ff.). McPherson et al. (2001: 419ff.) further distinguish between baseline and inbreeding homophily; the former signifying static demographical characteristics while the latter describes developing traits induced by various dimensions. The following characteristics account for status homophily, among others: ethnicity, sex, age, religion, education, occupation and social class (ibid.: 420–428). Value homophily is composed of attitudes, traits and beliefs (ibid.: 428–429). These theoretical considerations are reflected in the proposed framework. With respect to preferences of elites, Feiock (2013: 415) states: “Similarity in preferences in public goods provides information and signals common interests that minimize external decision cost of acceptance of collective choices contrary to internal preferences.” The author lists homophily of the economical, demographical and ideological profiles of the potentially collaborating elites as decisive factors (ibid.). The same holds true for similarities among the underlying communities (ibid.).

Zipf (1949) explains the deeper mechanisms behind homophily with the principle of least effort guiding human behavior, more precisely “the principle of the least average rate of probable work” (ibid.: 6). The theoretical and empirical findings of Zipf (ibid.) go in line with the proposed ICA framework of Feiock (2009, 2013), also pointing towards cost-benefit calculations when explaining cooperation. This is in accordance with empirical tests within the collaboration literature. For example, Minkoff (2013: 272) takes up the ICA framework and introduces his theoretical thoughts on cooperation and transaction costs as follows: “As costs go up and down the interest governments will have in cooperation and their ability to formalize it will fluctuate.” In this vein, we suggest that cooperation is more frequent among cantons – the observations under investigation – that are alike, implying a lower collaboration risk and, thus, lower transaction costs.
Derived from the ICA framework and the central arguments of the literature on homophily we propose the following basic thesis:

**General proposition (I):** The higher the degree of homophily among two cantons, the more frequent they enter into mutual agreements.

Here, we will add another similar assumption. Internal factors of a collaborating unit influence the likelihood that the unit enters into an agreement. The ICA framework reasons as follows: “It is easier for local officials to speak for the jurisdiction in bargaining and negotiating with other organizations and governments when they represent more homogeneous communities” (Feiock 2013: 412). The framework applied argues that agency costs and costs of preference aggregation are positively related to the degree of heterogeneity of a group that finally hinders collaboration (ibid.: 415). Basically, agency costs arise in an agency relationship that is defined as a “contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making [sic] authority to the agent” (Jensen and Meckling 1976: 308). Agency costs encompass costs of monitoring and bonding as well as residual losses resulting from divergences between an agents’ actions and those that would maximize the principals’ welfare (ibid.). At the same time, as the definition of an agency relationship reveals, the number of principals can be greater than one respectively the principal might not be one single, homogeneous actor but can rather consist of various heterogeneous and diversely interested actors. Preference aggregation, also among rational and utility maximizing individuals, can thereby lead to an ambiguous and not transitive preference ordering, due to the varying preference orderings of the single individuals (Shepsle and Bonchek 1997: 49ff.). This is the theoretical reasoning for our second basic assumption:

**General proposition (II):** The higher the degree of homogeneity within a canton, the more frequent it enters into intercantonal agreements.

The discussion revealed that cooperation is understood as a multi-stage concept. Before two cantons cooperate, there is a process of internal preference aggregation. Consequently, two questions will guide the deduction of testable hypotheses that follows: What are the factors that explain the number of intercantonal agreements per canton, and what are the ones that explain the number of intercantonal agreements per dyad of two cantons? We limit the formulation of hypotheses to factors that are expected to have a high explanatory power or are politically in nature. Further factors will be mentioned but not discussed in detail.

**Preferences within Elites and Communities**

The ICA framework assumes that collaboration is positively linked to the degree of economic, demographic and ideological homogeneity within a jurisdiction (Feiock 2013: 412, 415). While this points towards community factors only – they will be discussed subsequently – we want to add another sphere that might be decisive before intergovernmental agreements can be realized: the political branch. A well-known approach of Political Science that can be drawn upon is the veto players theory developed by Tsebelis (1995, 2002). The approach aims at explaining policy stability (ibid. 1995: 292ff.) by putting veto players – actors whose agreement is necessary for a policy change – within different institutional settings to its center (ibid.: 301ff.). Institutional veto players, one of two types of veto players, are constitutionally entrenched (ibid.: 302). Tsebelis (1995) argues that the number of veto players (ibid.: 297, 305–308), their congruence (ibid.: 298, 308–311) and their internal cohesion (ibid.: 301, 311–313) determine the degree of policy stability. Being aware of the pitfalls that go in line with applying the veto players theory
(Ganghof 2003), we want to make use of its basic assumption and parts of the theory in combination with the ICA framework.

The literature on intercantonal cooperation stresses the tensions that arise from this institution due to its executive-driven nature (Abderhalden 1999). Compared to regular cantonal legislation, a difference in parliamentary activity and involvement seems inherent. Whether this can be called a lack of democratic legitimacy is up for debate (ibid.). Generally, cantonal parliaments possess the competence to veto intercantonal agreements, except the object that is decided upon lies in the sole competence of the executive (e.g. Borter 1976: 68ff., 141ff.). However, observers report that a veto hardly ever happens; too big is the pressure put upon the respective parliament (Möckli 1999: 5). Others argue that there are cantonal parliaments that signalize not to accept cantonal agreements anymore. As already mentioned, involvement is decisive in this field. In a case study Schwarz et al. (2014: 20–21) depict that resources of a parliament are crucial that it can exercise its formal rights during the process of executive bargaining. We argue that a parliament’s power influence the frequency of executive-driven intercantonal contracting. We assume that an executive branch faces less obstacles to conclude intercantonal agreements when being complemented by a weak legislative branch than when facing a strong parliament. The literature confirms that the cantons vary concerning the power balance between government and parliament in general (Kaiss 2010).

**Hypothesis 1.1**: The higher the degree of political-institutional power asymmetry in favor of the executive, the more frequent a canton enters intercantonal agreements.

While institutional veto players have their origin in the constitution, partisan veto players emerge within the political institutions and depend on majorities within other institutions (Tsebelis 1995: 302). Tsebelis (ibid.) generally reasons that “the agreement of partisan veto players [on behalf of policy change] is, strictly speaking, neither necessary nor sufficient”. Partisan veto players might dominate within institutions while policy change depends on agreement among these institutions. However, and as already pointed out, the author proposes that policy change is less likely when the number of, the differences between and the internal variation of the veto players increase (ibid.: 293ff.). We can as well argue with the ICA framework that preference aggregation is costlier and, thus, more difficult the more heterogeneous the central party political actors are. The number of parties in government and parliament as well as their ideological differences are expected to positively affect policy stability.

**Hypothesis 1.2**: The lower the number of partisan veto players within a canton, the more frequent it enters intercantonal agreements.

We now turn to further variables that can have an effect on the frequency of cooperation. First, we take structural factors into consideration. In their early analysis on intergovernmental cooperation, Campbell and Glynn (1990) demonstrate that population size positively affects the intensity of intergovernmental cooperation. This finding is also made in more recent studies in the US (e.g. Kwon et al. 2014) but also in the Swiss context (Bochsler 2009). LeRoux and Carr (2007) show, that structural variables even play the major role in explaining cooperation, whereby population size is the factor with the most consistent influence within this block. In a similar vein Campbell and Glynn (1990) further show, that the degree of urbanization spurs
intergovernmental cooperation. However, this finding depends on the level of analysis. While the reported effect relates to the county level, their model falls short of explaining intergovernmental cooperation of cities. On the other hand, Kwon et al. (2014) do not detect such an effect that derives from urban, central in comparison to rural, peripheral areas. Mixed or even contrary results are not surprising. Other studies confirm that there is an effect based on structural variables like population density or population change, while population size does not play a role (e.g. Kwon and Feiock 2010). Additionally, the direction of the effects varies from previous cited studies, what shows that structural factors can have an influence, but a clear pattern is missing. After Carr et al. (2009) a city’s population as well as its growth are positively related to service production within an entity over its provision by another government. A positive effect of population size on internal service provision stands in contrast to our theoretical argument that predicts higher costs of preference aggregation being the result of greater population size leading to a lower magnitude of contracting.

Next, entities that have a better economic record might be less reliant on other units in providing goods and services. While high median household income drives cooperation (Kwon and Feiock 2010, LeRoux and Carr 2007), the fiscal capacity of an entity, measured by the percentage of own source revenues, mitigates it (Kwon and Feiock 2010, Kwon et al. 2014). LeRoux and Pandey (2011) similarly show that change in per capita tax revenue positively relates to cooperation activity. Here, we follow LeRoux and Carr (2007: 347): “[…] wealthier jurisdictions may be less likely to cooperate because they can meet current service demands through own-source revenues and can easily finance desired service enhancements through their own resources”.

With regard to demographic factors we want to point out the ethnical composition of an entity. Our general theoretical argument suits well and we can directly build upon it. Kwon and Feiock (2010) apply the ICA framework and argue as follows:

“Homogeneity in city demographics can reduce agency costs when government officials negotiate interlocal agreements on behalf of citizens. Similarity among constituents provides greater certainty of the principal’s desired outcome, making the agent’s task easier.” (Kwon and Feiock 2010: 878)

Research partly confirms this hypothesis, so that some studies detect a positive effect of ethnical homogeneity on cooperation (Kwon and Feiock 2010, Kwon et al. 2014), while others make mixed (LeRoux and Carr 2007) or no findings in this respect (LeRoux et al. 2010). However, the variable could be of high interest for the analysis of the Swiss cantons, because ethnic diversity, or more precisely, multilingualism, is a key feature for Swiss politics on a federal but also on a cantonal level, depending on the respective canton under conduct.

Next to potential political determinants, structural, economical and demographical variables can influence the frequency of contracting. Accordingly, the following three additional hypotheses are proposed:

*Hypothesis 1.3:* The larger the population size of a canton, the more frequent it enters intercantonal agreements.

*Hypothesis 1.4:* The higher the economic capacity of a canton, the more frequent it enters intercantonal agreements.
Hypothesis 1.5: The higher the degree of ethnical homogeneity within a canton, the more frequent it enters intercantonal agreements.

Preferences across Elites and Communities

Feiock (2013: 412, 415) argues, that similarity in the profiles of the political elites as well as the profiles of the respective community further cooperation because they indicate common or homogeneous interests in the provision of public goods. Economic, demographic and ideological similarities between the political elites, meaning, across units, facilitate negotiations because external decision costs are reduced, and homogeneity within units make the aggregation of preferences easier and, consequently, less costly (ibid.). So, the argumentation of the previous section concerning a single unit is now assigned to the relationship among units. Research on the topic shows, that, with regard to value homophily, political preferences are strongly correlated with friendship among individuals. By using US-survey data, Verbrugge (1977, 1983) demonstrates that the chances of having a first choice friend with the same political party affiliation are around five times higher than having a best friend with a deviant party association. These effects can be replicated by use of survey data conducted in Germany (ibid.). Similarly, Knoke (1990) shows that social resp. discussion networks of individuals possess a high degree of value homophily. Party preferences within these networks are strongly homogenous, meaning that party preference of an individual is most likely conform to his partisan environment (ibid.). Going one step further, Gerber et al. (2013) analyze the effect of the ideological similarity of communities on contracting activity of their respective political elite. They conclude: the smaller the political distance between two communities, measured by the difference of party registrations, the greater the amount of agreements that are concluded by the elites (ibid.). Minkoff (2013) uses a similar approach, but in his analysis partisan differences among communities do not play a decisive role in determining interlocal cooperation. He argues that the scarce insignificance, although the coefficient is pointing to the proposed direction, is due to the low degree of partisan polarization in parts of the analyzed units (ibid.: 286). For intercantonal cooperation as of 2005, Bochsler (2009) comes to a similar result: “[C]antons with similarly composed governments co-operate slightly more easily, while cantons with opposed governments co-operate less often, but partisan differences are clearly not a general or major obstacle to co-operation.”

Hypothesis 2.1: The higher the degree of homophily across political elites of two cantons, the more frequent they cooperate in intercantonal agreements.

Whether similarity of the party composition of the collaborating governments affects the amount of collective action or not remains in question and, thus, will be tested for the most recent estate of intercantonal cooperation.

Next to political ideological similarities, Feiock (2013: 412, 415) argues that social, demographic, economic and structural factors across units determine the collaboration risk and, thus, the transaction costs of cooperation. Here too, similarity breeds awareness about information, division and defection costs that make up the overall costs of transaction. Despite the reasonable argumentation, the empirical results are rather mixed. Minkoff (2013), Gerber et al. (2013) and to some extent also Feiock et al. (2012) can demonstrate that similar wealth – median household income – furthers collective action. The effect of another socioeconomic variable – ethnicity, respectively the differences in the ethnic compilation of two entities – is not clear cut, whereby most of the studies that explain dyadic cooperation demonstrate that more ethnical similar communities are more likely to agree on joint action (Minkoff 2013, 2013).
Gerber et al. 2013). In this vein, a common language possesses a high degree of explanatory power with respect to intercantonal cooperation (Bochsler 2009). Furthermore, Feiock et al. (2012: 563, 566) argue that population similarity is negatively correlated with cooperation and explain this by approaches of resource dependence that assume that actors can profit from uneven partnerships due to provision of complementary information and resources. Minkoff (2013) and Gerber et al. (2013) do not find an effect of this kind. However, Feiock et al. (2012) can show that appointed as well as elected officials responsible for economic development in an US-American metropolitan area are more likely to cooperate when their respective partner deviates in terms of population size. For intercantonal cooperation as of 2005, Bochsler (2009: 354) plausibly argues that Swiss cantons should be particularly confronted with problems emanating from their small-scale structure while the complexity and quality of public good provision is steadily increasing. However, the analysis reveals, that it is rather the more populated entities that cooperate with each other in general and in costly policy fields like education, science and culture as well as health services and social security in particular (ibid.: 361). Due to the rather scarce state of research on dyadic cooperation and the fact, that we will present other, more promising explanations, we formulate a general thesis.

**Hypothesis 2.2:** The higher the degree of homophily across the communities underlying the collaborating elites of two cantons, the greater the number of contractual ties.

McPherson et al. (2001: 431) list family ties as a source of homophily. Simultaneously, the basic structural and physical variable explaining homophily is geography (ibid.: 429). Zipf (1949), by applying the *principle of least effort*, shows that people that are geographically close are more likely to connect than given these people are more geographically scattered. The author demonstrates data on the interplay of several indicators pointing towards this effect of localization: The larger the distance between two populations, the smaller the number of shared news items, due to differences in the ascribed value of the single news (ibid.: 387–388); the larger the distance between two communities, the smaller the amount of goods that are interchanged by railway (ibid.: 393–394); the shorter the distance, the higher the number of passengers travelling by airway between two communities (ibid.: 397); or, the closer two cities, the more telephone messages are interchanged (ibid.: 398–400). The connection is hardly doubted within research on cooperation and collective action. Bochsler (2009: 361) shows that the amount of intercantonal contracting decreases with growing distance among two cantons and is significantly higher given two cantons share a common border compared to the absence of a joint demarcation line. We expect that the positive link between geographical proximity and contractual intensity holds true for the most recent time.

**Hypothesis 2.3:** Common borders enhance intercantonal cooperation, while its absence hampers it.

**Hypothesis 2.4:** The shorter the distance between two entities, the higher the number of joint intercantonal agreements.

In addition to geography, McPherson et al. (2001: 431ff.) discuss the strength of organizational foci – e.g. school, work, voluntary groups – as sources of homophily and, thus, cooperation. Similar but differently framed reads the observation of Feiock (2013: 412–414, 415). He argues that existing institutions can influence cooperation, among others, in the form of integration mechanisms and network brokers that can facilitate intergovernmental contracting by reducing transaction costs (ibid.). The reasoning behind this is the effect of repeated action situations
providing opportunities to monitor and sanction the counterpart and, thus, making cooperation a beneficial strategy for all (Ostrom 2005: 53–55). In preparation of analyzing the role of organized networks on the amount of cooperation, LeRoux et al. (2010: 269) summarize several theoretical strands as follows: “Social Networks help to establish trust, create norms of reciprocity, and reduce transaction costs, thereby increasing the likelihood that local government officials will engage in service cooperation.” Their investigation reveals a positive link between the activity of an actor within regional associations, e.g. Councils of Government, and the extent of interlocal service cooperation of that actor (ibid.). We expect the mitigating function of conferences within the Swiss context to be extraordinary strong due to their high degree of institutionalization and their strong linkages resp. integration among each other (Bolleyer 2009).

**Hypothesis 2.5**: Common membership in regional conferences enhances intercantonal cooperation, while its absence hampers it.

Before we turn to descriptive and inferential statistics that aim at exploring and describing the data as well as testing the derived hypotheses, we will explicate the data sources used, the operationalization of the central variables and the methods applied.

### Data, Operationalization and Methods

The following section sets forth the technical cornerstones of the analysis.

**Data and Operationalization**

The dependent variable of the subsequent analysis is intercantonal cooperation indicated by the number of intercantonal agreements in force in 2016. These agreements are collected for all 26 cantons as well as by all possible pairs of cantons. While the data frame which builds on the former variable is in a wide format, the latter is carried out in a matrix comprising 26 times 26 cells. This means that the number of observations increases from 26 up to 325 when analyzing pairs of cantons. Thereby, the data is cross-sectional. Although, the oldest intercantonal agreement still in force is of 1564, the data illustrates the state of intercantonal contracting as of 2016. However, it relies on a larger time horizon. Furthermore, the scale of measurement of the dependent variable is metrical. To measure the number of intercantonal agreements per canton we examine all cantonal statute books (*Gesetzessammlungen*) for intercantonal law and extract all respective contracts between cantons. The statute books are accessed via the cantonal webpages[^4]. As a second source to validate the data the webpage *LexFind*[^5] is used. Responsible for its content is the *Zentrum für Rechtsinformation – ZRI* on behalf of the *Schweizerische Staatsschreiberkonferenz*. Originally the content of the webpage was comprised by the University of Fribourg on behalf of the *Konferenz der kantonalen Justiz- und Polizeidirektorinnen und -direktoren (KKJPD)*. Ambiguities were reexamined by consulting earlier but thematically identical data collections by Frenkel and Blaser (1981) as well as Bochsler (2009). The total number of intercantonal agreements is further subdivided into the different policy areas within which they can be located.

[^4]: e.g. [https://www.belex.sites.be.ch/](https://www.belex.sites.be.ch/) for the Canton of Bern, [https://gesetzessammlungen.ag.ch/](https://gesetzessammlungen.ag.ch/) for the Canton of Aargau, and so forth.
As a second dependent variable that is used for descriptive purposes the annual reports on the cantons financial statistics – the FS Model of all cantons individually – of the Federal Finance Administration FFA\(^6\) are consulted. Within each report the tables containing revenues and expenditures are scanned for such concerning other cantons or concordats. The respective sums are calculated for each canton.

The data and operationalization of the independent variables is presented in two steps and follows the logic of the subsequent analysis. First, the independent variables of the model explaining single state cooperation will be laid out. Second, the ones that help explain dyadic cooperation are presented.

The variable measuring the balance of power between the executive and legislative branch in the first model comes from Kaisi (2010) and is carried out as an index combining factors that measure the relation between parliaments and governments with respect to the power of the former to appoint political or judicial positions, to legislate and to control the other branches. High values signify a strong parliament via-à-vis a weak government while low values stand for a weak legislative and a strong executive branch (ibid.). While this index measures the degree of horizontal power balance, the decentralization index of Mueller (2015) accounts for the political, institutional and fiscal balance of power between the cantonal and local level. The following applies: The higher the values of the index, the higher the degree of overall cantonal decentralization, and vice versa. Furthermore, we argue that political homogeneity within a canton makes contracting easier. We use two variables in this respect: The partisan diversity within parliament and the coalition type of government. The former is calculated by the absolute number of parties in parliament. The latter stands for the breadth of the cantonal executive branches embracing the following possible categories: divided governments, surplus coalitions, minimal winning coalitions and single party majorities. For the time span that is covered by the data the modus – the most frequently occurring category – is calculated for each canton. This leads to a dummy variable that takes the value of 0 when a single party majority is in office in the most years available and the value of 1 when a surplus coalition rules. Both variables are taken from the dataset on the quality of cantonal democracies conducted by Vatter et al. (2012) that covers the years 1979 to 2008.

The further variables of the model are as follows: population size (1990–2015, arithmetic mean) and the relative number of commuters compared to population size (2010–2015, arithmetic mean of the relative number)\(^7\) (hypothesis 1.1), the total of intercantonal equalization payments per capita (2008–2016, arithmetic mean)\(^8\) (hypothesis 1.2), the amount of people above retirement age and of foreigners compared to the whole cantonal population as well as a dummy variable that accounts for multilingualism within a canton (hypothesis 1.3). Unless otherwise stated, data is taken from STAT-TAB, an interactive dataset provided by the Swiss Federal Statistical Office FSO\(^9\).

The second step of the analysis builds on the same data sources but uses different explanatory variables. This is due to the fact that the second model aims at explaining intercantonal cooperation by taking relational cantonal characteristics into account. The indicators measuring


\(^7\) [https://www.bfs.admin.ch/bfs/de/home/statistiken/mobilitaet-verkehr/personenverkehr/pendlermobilitaet.assetdetail.1862649.html](https://www.bfs.admin.ch/bfs/de/home/statistiken/mobilitaet-verkehr/personenverkehr/pendlermobilitaet.assetdetail.1862649.html) (last accessed on 31 August 2017)


\(^9\) [https://www.pxweb.bfs.admin.ch/](https://www.pxweb.bfs.admin.ch/) (last accessed on 31 August 2017)
homophily across the political elites are disproportionality measures for the composition of cantonal parliaments and cantonal executives. Therefore, we use the ascription of the political-ideological affiliation – left, center, right – to the respective party in parliament and in the executive as categorized by Vatter et al. (2012). Then, we calculate the least-squares index (LSq) after Gallagher (1991) that results in high values when the cantonal governments of two cantons vary highly with respect to their political-ideological affiliation. The same calculation is executed for the cantonal parliaments in relation to each other.

Next to testing the effects that directly derive from homophily among the political elites, several variables test the influence of community characteristics that are compared between each dyad. Concerning population size, we follow Bochsler (2009: 357) and assign the size of the smaller canton of each dyad to the respective cell as the one determining whether cooperation takes place or not. The author finds out that the bigger the population size of the smaller canton the more frequent cooperation takes place. This implies that mainly more populous cantons cooperate with each other, while small scale cantons are rather unattractive partners for concluding intercantonal agreements. Next, we assess whether two cantons are both urban or both rural. If this holds true, the dyad receives the value of 1, otherwise it is given the value of 0. On the basis of a publication of the Swiss Federal Statistical Office FSO\(^\text{10}\) the cantons are first categorized as rural when they do not possess a city of 50’000 inhabitants or more, or as urban when they have a clear city center, a city of 50’000 inhabitants or more (reference years 1990, 2000, and 2015). The underlying question here is whether same structural characteristics pursue cooperation, or whether it is rather the structural differences that spur cooperation. The same logic as of the test of population size is applied to the economic capacity of a canton in relation to a potential partner. We compare the total of intercantonal equalization payments per capita between each canton and assign the lower value to the respective dyad. The rest of the variables of the second analysis is self-explanatory. German, French and Italian as well as Common border and Regional conference are 1 when two cantons share the same language, a common border or are member of the same regional conference. Lastly, the distance between the capitals of two cantons is measured and shall test whether closeness breeds cooperation or not. As in the first analysis and if not otherwise referenced, the data on community factors is taken from STAT-TAB provided by the Swiss Federal Statistical Office FSO.

**Methods**

The analysis to be undertaken consists of two parts. The first is descriptive and serves as means to explore the data. To do so we will rely on visualizations that illustrate the distribution of the central variable – the number of intercantonal agreements – in dependence of several factors like time, policy area, and so forth. The descriptive part will close with a network graph of intercantonal cooperation that needs further clarification. It will group the observations in a multi-dimensional space by employing Multidimensional Scaling (MDS). The position within the multi-dimensional space is determined by the similarity resp. dissimilarity between each pair of observations. Here, similarity resp. dissimilarity is measured by the number of joint agreements in comparison to the number of agreements where only one of the two cantons

\(^{10}\) [https://www.bfs.admin.ch/bfs/de/home/statistiken/kataloge-datenbanken/publikationen/uebersichtsdarstellungen/statistik-schweizer-staedte.assetdetail.2321992.html](https://www.bfs.admin.ch/bfs/de/home/statistiken/kataloge-datenbanken/publikationen/uebersichtsdarstellungen/statistik-schweizer-staedte.assetdetail.2321992.html) (last accessed on 31 August 2017)
under conduct participates and the number of agreements where none of the two cantons takes part.\textsuperscript{11}

The inferential statistics are twofold. At first, a simple OLS regression will be employed due to the metric scale of measurement of the dependent variable. Each canton is one observation resulting in 26 observations in total. The second part is more complex. We apply the Quadratic Assignment Procedure (QAP) as proposed by Hubert and Schultz (1976) due to the fact that agreements are not unilateral, meaning that our underlying data is in truth relational. On that condition, a simple OLS regression on the data when put to a dyadic and relational form – one pair of two units counts as one observation – would result in biased standard errors caused by the non-independence of the observations. Krackhardt (1987, 1988) shows that the use of QAP solves this problem of autocorrelation. The method permutes the array of the dependent variable so that the connection to the independent variables is dissolved. OLS regression will be drawn on the original data as well as on the numerous permuted datasets. Then, the correlation coefficients of the original model are compared to the distribution of the respective coefficients in the models that are calculated based on the randomly permuted data. The new p-values of the observed correlation coefficients are finally the chances with which the observed effects occur under random assignment of the values of the dependent and the independent variables. Thus, truly significant correlations are observed when the chance of occurrence of an observed effect is sufficiently small when measuring the same relation under random assignment of the dependent variable to the independent variables.

Analysis and Findings

The analysis is carried out in two steps. First, descriptive statistics will be used to give general insights into the distribution of the central variable – intercantonal cooperation by means of intercantonal agreements. Thereby, special attention is payed to possible effects caused by the NFA. The inferential statistics then try to provide explanations of why Swiss subnational entities contract. So, while first each canton is treated as one single observation and is analyzed separately, a dyadic perspective is taken in the second step of the analysis. This meets the fact that cooperation is never unilateral but always requires at least two parties.

Descriptive Statistics

For a better understanding, the descriptive analysis is carried out by several data visualizations. First, we investigate whether intercantonal contracting changed over time. Figure 1 shows the number of intercantonal agreements by year of its conclusion. In line with previous studies and as emphasized in the section on the data that is used, we can only capture all agreements that are in force by now, meaning by 2016. The figure is not able to provide a trend over time but plots the state of intercantonal contracting sorted by the year of conclusion of such agreements that are (still) in force. What might look like longitudinal data and time series is cross-sectional as of 2016. However, comparisons over time are possible due to earlier studies that rely on the same data sources. While Frenkel and Blaser (1981) report around 300 intercantonal agreements in force in the beginning of the 1980s, Bochsler and Sciarini (2006) identify around

\textsuperscript{11} We use the phi coefficient after Pearson (1900) due to the fact that the MDS is calculated on the basis of the 26 cantons as the observations and each agreement as one variable. The variables are all binary receiving the value of one when a canton has concluded a contract and the value of zero when the respective canton is not a contracting party. The MDS is then compiled on a pairwise comparison as described above.
760 contracts as of 2005. Despite this massive increase in the course of the second half of the 20th century, the number of intercantonal agreements in force in 2005 compared to the latest number of contracts does not vary. We also identify around 760 intercantonal agreements in force in 2016. Between these two points in time the NFA entered into effect on the 1st of January 2008. The comparison of the number of agreements before and after the reform does not reveal any changes. This stands in contrast to the general expectation that the NFA pursues intercantonal contracting as carried out in the introductory remarks.

**Figure 1:** The Number of intercantonal agreements by year of entry into force (as of 2016)

![Number of intercantonal agreements by year of entry into force](image)

*Note:* The figure shows all intercantonal agreements that were in force in 2016. The year 1847 embraces the sum of all contracts that have been concluded earlier and are still in effect. The number of intercantonal agreements are plotted on the Y-axis.

*Sources:* Own data compilation on the basis of the cantonal statute books and [www.lexfind.ch](http://www.lexfind.ch) (last accessed on 31 August 2017) and reexamined by means of older but thematically identical data by Frenkel and Blaser (1981) and Bochsler (2009).

Due to the fact that this first finding counters the expectation we want to shed light on another indicator that measures the quantity of intercantonal cooperation. Figure 2 shows intercantonal revenues and expenditures per canton between 1990 and 2015. While it cannot be determined whether changes for the year 2008 are partly due to the NFA or only caused by new standards with which the respective financial statistics are calculated from 2008 on12, the graphs generally show a clear trend for the pre- and post-2008 era. The financial relations between the cantons – the intercantonal transfers in the context of the equalization scheme are excluded here – are steadily increasing. However, the cantons vary in the degree to which services and goods are shared, and, taking all cantons together, only make up around 2 to 3 percent of total cantonal revenues and expenditures.

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Figure 2: Intercantonal revenues and expenditures by canton (1990–2015)

Note: The figure shows the relative share of intercantonal revenues and expenditures as a percentage of total revenues and expenditures per canton (Y-axis) over time (X-axis). The vertically drawn scattered line highlights the year 2008.

The abbreviations read as follows: AG Argovia; AI Appenzell Inner-Rhodes; AR Appenzell Outer-Rhodes; BE Berne; BL Basle-Country; BS Basle-City; FR Friburg; GE Geneva; GL Glaris; GR Grisons; JU Jura; LU Lucerne; NE Neuchâtel; NW Nidwald; OW Obwald; SG St. Gall; SH Schaffhouse; SO Soleure; SZ Schwyz; TG Thurgovia; TI Tessin; UR Uri; VD Vaud; VS Wallis; ZG Zug; ZH Zurich.

Sources: Federal Finance Administration FFA\textsuperscript{11}.

Figure 3: The Number of intercantonal agreements by theme and size of partners (as of 2016)

Note: The figure shows all intercantonal agreements that were in force in 2016. The number of intercantonal agreements are plotted on the Y-axis.

Sources: See figure 1.
Figure 3 shows the extent to which the different policy areas are addressed by intercantonal agreements. While the general thematic distribution is similar to the one detected by Bochsler and Sciarini (2006) for 2005, figure 4 illustrates the number and kind of agreements that are addressed by Art. 48a Cst, which was one of the central alterations brought about by the NFA. Two findings stand out. First, intercantonal cooperation within the reformed policy areas make up only a small amount of all intercantonal agreements in effect. Second, while bilateral cooperation is clearly dominant in the areas not addressed by the NFA, nearly 50 percent of all agreements within the reformed policy fields comprise three or more cantonal contract partners.

At last, figure 5, a network graph, provides various insights that will be given more depth and validity when calculating inferential statistics in the next section. The graph basically shows that the number of agreements per canton (size of the bubbles) as well as between each pair of cantons varies (connecting lines between bubbles). The latter results in a network of cantons that take specific positions and that cluster in different groups within the network. The visualization confirms that geography plays a major role in intercantonal contracting. The network is formed by geographical demarcation lines. Thus, it is separated into a northwestern, a western, a central Swiss cluster as well as two closely related eastern and northeastern clusters.

**Inferential Statistics**

The multivariate analysis that shall clarify which factors explain intercantonal cooperation is twofold. In a first step we aim at explaining the intensity of intercantonal cooperation for single cantons. In a second step we use pairs of two cantons as observations. The interpretation will draw on the general models taking all intercantonal agreements into consideration, unless otherwise stated.

**Explaining the Number of Intercantonal Agreements per Canton**

Table 1 shows the results of the OLS regression testing determinants of intercantonal cooperation, taking one single subnational entity as one observation. After running a first regression, two outliers could be detected by means of post-estimation analysis that have an exceptionally strong influence on the model.\(^{13}\) Thus, the number of observations for this first step of the analysis is reduced from 26 to 24 cantons. This justifies the use of robust standard

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\(^{13}\) The calculation of Cook’s D (Cook 1977) that not only considers the Y- but also the X-values of each observation showed an exceptionally strong influence of the cantons of St. Gall and Tessin on the regression model. These two cantons are excluded from the further OLS estimation. DFITS (Welsch and Kuh 1977) were also calculated and confirmed the exclusion of these two cases.
errors within all models displayed in Table 1. Finally, the logarithm of the dependent variable is computed due to the modestly right-skewed distribution of the variable.

**Figure 5:** Network of intercantal contracting

*Note:* The figure shows a network graph of all cantons on the basis of all intercantal agreements that were in force in 2016. The mean of joint intercantal agreements between the cantonal dyads is N=38 and functions as a threshold: lines connecting the cantons are only drawn when the number of joint intercantal agreements exceeds 38 contracts. Furthermore, the size of the bubbles is proportional to the number of intercantal agreements that are in force in each canton.

For the meaning of the abbreviations see the note of figure 2.

*Sources:* See figure 1.
Table 1: OLS regression of political, structural, economical, and ethnical resp. societal factors on intercantonal cooperation

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>All (log)</th>
<th>Theme 1: Education, science, culture (log)</th>
<th>Theme 2: Health service, social security (log)</th>
<th>Theme 3: Security, state organization (log)</th>
<th>Theme 4: Infrastructure, environment, traffic (log)</th>
<th>Theme 5: Economy, agriculture (log)</th>
<th>Theme 6: Finances, taxes (log)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercantonal agreements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive-legislative relation</td>
<td>-0.735</td>
<td>-0.599 (0.244)</td>
<td>-0.679</td>
<td>-0.339</td>
<td>-0.804</td>
<td>-1.124</td>
<td>-2.556</td>
</tr>
<tr>
<td>Decentralization index</td>
<td>-0.0450</td>
<td>-0.110 (0.0412)</td>
<td>0.0907</td>
<td>-0.190 0.240</td>
<td>-0.102</td>
<td>0.0749</td>
<td>0.0870</td>
</tr>
<tr>
<td>Parliamentary parties</td>
<td>0.0281</td>
<td>0.0603 (0.0214)</td>
<td>-0.0248</td>
<td>-0.0267</td>
<td>0.140</td>
<td>0.00643</td>
<td>0.00114</td>
</tr>
<tr>
<td>Coalition type</td>
<td>0.0185</td>
<td>0.0455 (0.0786)</td>
<td>0.0285</td>
<td>-0.0703</td>
<td>-0.374</td>
<td>0.0415</td>
<td>0.495</td>
</tr>
<tr>
<td>Population size (log)</td>
<td>0.184 0.114 (0.0483)</td>
<td>0.154</td>
<td>0.179</td>
<td>0.455</td>
<td>0.208 0.282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commuters</td>
<td>0.0136 0.00600 (0.00233)</td>
<td>0.0222 0.00747</td>
<td>0.0117 0.00360</td>
<td>0.0448 0.00949</td>
<td>0.0136 0.0146</td>
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<td></td>
</tr>
<tr>
<td>Intercantonal equalization payments</td>
<td>-0.0000617</td>
<td>-0.0000354 (0.0000450)</td>
<td>-0.0000819</td>
<td>0.0000707</td>
<td>-0.0000107</td>
<td>-0.0000217</td>
<td>-0.0000276</td>
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<tr>
<td>Age (log)</td>
<td>0.396</td>
<td>0.237 (0.382)</td>
<td>1.863 1.196</td>
<td>-0.198</td>
<td>-0.848</td>
<td>0.286</td>
<td>0.622</td>
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<tr>
<td>Foreigners</td>
<td>-0.0134 0.00029 (0.00530)</td>
<td>-0.00851</td>
<td>-0.0355 0.00799</td>
<td>-0.0240</td>
<td>-0.0232</td>
<td>0.0166</td>
<td>0.0136</td>
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<tr>
<td>Multilingualism</td>
<td>-0.125</td>
<td>0.0395 (0.0801)</td>
<td>-0.0969</td>
<td>-0.228 0.0219</td>
<td>-0.0758</td>
<td>0.0871</td>
<td>0.173</td>
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<tr>
<td>Constant</td>
<td>1.455</td>
<td>1.308 (0.985)</td>
<td>-5.669 1.357</td>
<td>-3.752</td>
<td>3.045</td>
<td>-1.123</td>
<td>2.087</td>
</tr>
<tr>
<td>N</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>R²</td>
<td>0.848</td>
<td>0.662</td>
<td>0.685</td>
<td>0.771</td>
<td>0.835</td>
<td>0.643</td>
<td>0.761</td>
</tr>
<tr>
<td>Adj.-R²</td>
<td>0.730</td>
<td>0.402</td>
<td>0.443</td>
<td>0.595</td>
<td>0.708</td>
<td>0.368</td>
<td>0.577</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001
Two indicators are tested with respect to political-institutional power-asymmetry: the relationship between the executive and legislative branch and the degree of inner-cantonal decentralization. While the former measures horizontal checks and balances, the latter indicates the vertical power divide. Both have a negative effect on intercantonal contracting. The table illustrates that a strong parliament can be effective in restricting the amount of intercantonal cooperation. However, the decentralization index falls short of being significantly different from zero. The indicators measuring party political homogeneity – the number of parties within the parliament and the coalition type of the executive – are not systematically linked to the number of intercantonal agreements. Thus, party political diversity in the legislative as well as the executive branch does not count as a hurdle for intercantonal contracting. All in all, of all political-institutional and partisan variables only strong parliaments seem to influence intercantonal contracting. However, this finding needs further clarification and deeper analyses. While the first hypothesis (1.1) can be maintained, the second (1.2) must be rejected.

In contrast to these mixed and limited findings, the structure of a canton highly influences its number of agreements. The effect of the first indicator reads as follows: The larger the population size, the higher the number of intercantonal agreements. We added the relative number of commuters per canton to the model. It is measured by the sum of inward and outward commuters relative to the overall population size. The effect that derives is positive and significantly different from zero. The finding is plausible: The more intense the exchange of a community with others, the higher the number of contractual ties. All in all, hypothesis 1.3 can be adopted and even extended by the second structural indicator. Population size and the relative number of commuters are the most powerful determinants of the number of intercantonal agreements. Furthermore the effects are consistent over nearly all policy areas when analyzed separately.

The economic capacity of a canton is not systematically linked to the number of intercantonal agreements. Finally, we test whether the (ethnical) composition of a canton limits its frequency to cooperate. While the percentage of foreign citizens living in a canton negatively influences the total number of intercantonal contract, the relative number of peoples above pension age as well as the multilingual character of a canton falls short of significance. When looking at the effects when specific policies are at stake we detect mixed results: While a higher share of elderly people spurs cooperation in some areas, contracting is hindered in some when cantons are characterized by a high share of foreigners or a multilingual composition of the population.

What do we make of these findings? Clearly, the most profound result is that population size and community exchange spurs political contractual cooperation. The second interesting insight derives from a political institutional factor indicating veto potential. A strong legislative branch vis-à-vis the executive branch seems to be an effective brake of the executive driven intercantonal cooperation. This is plausible, when considering that intercantonal cooperation is a point of contention especially for the cantonal parliaments that in around half of all cases fail to be adequately involved into the cooperation process (Strebel 2014).

Finally, the general model fits well with its factors explaining nearly 85 percent of the variance of the dependent variable. However, the variance explained varies, with respect to the policy area under conduct.
Explaining the Number of Intercantonal Agreements per Cantonal Dyad

We now go one step further and test determinants of intercantonal cooperation taking a dyadic perspective and applying the Quadratic Assignment Procedure (QAP). Therefore, the number of observations changes from 26 to 325 reflecting all possible pairs of subnational entities. Due to one case displaying missing values among the variables tested, the overall number of dyads included in the QAP decreases to 300. Furthermore, it must be pointed out that the dependent variable is inversed due to the strongly right-skewed distribution of the dependent variable. Thus, high values on the dependent variable signalize a low number of intercantonal agreements per dyad, and vice versa.

Table 2 shows the results for the QAP. Our first hypothesis (2.1) – homophily among political elites of two units spurs cooperation – can neither be accepted nor rejected. However, while the ideological disproportionality between cantonal parliaments has no effect on the frequency of agreements between two units, the ideological differences between the respective executive branches conditionally determines contracting between two entities. The effect is significant at the 5 percent level. This confirms the finding of Bochsler (2009) in two ways: It is the ideological stance of the government and not of the parliament – although a more precise political reflection of the population – that slightly the frequency of contracting.

The second hypothesis triggering cooperation from a dyadic perspective assumes a relationship between community factors and the frequency that the respective elites conclude an agreement (2.2). The indicators tested deal with ethnicity on the one hand and structure and economy on the other. As demonstrated in the theoretical section the state of research does not reduce the broad field to a small number of indicators that cover all potential community effects. With respect to structure table 2 confirms the analysis of Bochsler (2009). It is rather the more populous cantons that contract with each other. Additionally, similarity among cantonal profiles as both urban or both peripheral make cooperation more unlikely. Ethnical affiliations also play a role for the frequency of cooperation: A common language between cantons furthers contracting while linguistic divides hinder it. However, the geographical-structural basis of the language-variable is obvious. Therefore, we go one step further. The analysis explaining dyadic cooperation confirms the hypotheses 2.3, 2.4 and 2.5: common borders, short distances and common membership in regional conferences enhances cooperation. These factors have the most consistent effect when not only referring to all intercantonal agreements but when also paying attention to contracting within the single policy areas. Generally, this constitutes the main finding of the second part of the inferential statistics shown: It is especially the functional areas that determine intercantonal cooperation, while political factors play a role but only a minor one.

All in all, the model fit is good. The proposed model explains nearly 80 percent of the variance within the dependent variable. However $R^2$ varies from a low 29.4 to a high 68.2 percent of variance explained when analyzing each thematic field for itself.
Table 2: QAP regression of political, structural, economical, and ethnical resp. societal factors on intercantonal cooperation from a dyadic perspective

<table>
<thead>
<tr>
<th>Dependent variable: Intercantonal agreements</th>
<th>All (inv)</th>
<th>Theme 1: Education, science, culture (inv)</th>
<th>Theme 2: Health service, social security (inv)</th>
<th>Theme 3: Security, state organization (inv)</th>
<th>Theme 4: Infrastructure, environment, traffic (inv)</th>
<th>Theme 5: Economy, agriculture (inv)</th>
<th>Theme 6: Finances, taxes (inv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variables:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive branch (LSq)</td>
<td>0.0006*</td>
<td>-0.00021</td>
<td>0.00239</td>
<td>0.00043*</td>
<td>0.00373</td>
<td>0.00060</td>
<td>0.0062</td>
</tr>
<tr>
<td>Legislative branch (LSq)</td>
<td>-0.00004</td>
<td>0.00038*</td>
<td>-0.00228</td>
<td>-0.00041*</td>
<td>-0.00483</td>
<td>-0.00052</td>
<td>-0.00057</td>
</tr>
<tr>
<td>Population size (smaller canton, log)</td>
<td>-0.00242*</td>
<td>-0.0117*</td>
<td>-0.0204</td>
<td>-0.00021</td>
<td>-0.235</td>
<td>-0.0145*</td>
<td>-0.01372</td>
</tr>
<tr>
<td>Community type (inv)</td>
<td>0.00072*</td>
<td>0.00329*</td>
<td>0.0229</td>
<td>0.00096</td>
<td>-0.0126</td>
<td>-0.00482</td>
<td>0.00747</td>
</tr>
<tr>
<td>Intercantonal equalization payments (lower)</td>
<td>0.0001</td>
<td>0.0001</td>
<td>0.00001</td>
<td>-0.0000</td>
<td>0.00015*</td>
<td>0.0000</td>
<td>-0.00001</td>
</tr>
<tr>
<td>German</td>
<td>-0.00275*</td>
<td>-0.0167***</td>
<td>0.0171</td>
<td>-0.00328</td>
<td>0.126</td>
<td>-0.0155*</td>
<td>-0.0408***</td>
</tr>
<tr>
<td>French</td>
<td>-0.00774***</td>
<td>-0.0354***</td>
<td>0.0115</td>
<td>-0.0264***</td>
<td>0.328*</td>
<td>-0.0633***</td>
<td>-0.0218</td>
</tr>
<tr>
<td>Italian</td>
<td>0.00579*</td>
<td>0.0190</td>
<td>0.186*</td>
<td>0.0119</td>
<td>-0.0516</td>
<td>0.0655</td>
<td>-0.0241</td>
</tr>
<tr>
<td>Common border (log)</td>
<td>-0.00181*</td>
<td>-0.00273</td>
<td>-0.0202</td>
<td>-0.00560</td>
<td>-0.250*</td>
<td>-0.0236</td>
<td>0.0125</td>
</tr>
<tr>
<td>Distance (log)</td>
<td>0.0101***</td>
<td>0.0170*</td>
<td>0.160*</td>
<td>0.0362***</td>
<td>1.255***</td>
<td>0.0575</td>
<td>0.387*</td>
</tr>
<tr>
<td>Regional conference</td>
<td>-0.00265***</td>
<td>-0.00987***</td>
<td>-0.0614&quot;</td>
<td>-0.00545&quot;</td>
<td>-0.124</td>
<td>-0.0139</td>
<td>-0.00943</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0228***</td>
<td>0.123***</td>
<td>0.176***</td>
<td>0.0258***</td>
<td>-0.0160***</td>
<td>0.192</td>
<td>0.253***</td>
</tr>
<tr>
<td>N (permutations)</td>
<td>300 (1000)</td>
<td>300 (1000)</td>
<td>300 (1000)</td>
<td>300 (1000)</td>
<td>300 (1000)</td>
<td>300 (1000)</td>
<td>300 (1000)</td>
</tr>
<tr>
<td>R²</td>
<td>0.799</td>
<td>0.682</td>
<td>0.313</td>
<td>0.635</td>
<td>0.507</td>
<td>0.655</td>
<td>0.294</td>
</tr>
<tr>
<td>Adj.-R²</td>
<td>0.795</td>
<td>0.676</td>
<td>0.300</td>
<td>0.628</td>
<td>0.497</td>
<td>0.649</td>
<td>0.284</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001
Conclusion

The descriptive analysis showed that the NFA did not change the intensity of intercantonal contracting. The number of intercantonal agreements has rather been consolidated since the last systematic measurement of 2005. However, when using another indicator of intercantonal cooperation than the absolute number of intercantonal agreements – here, the share of intercantonal revenues and expenditures over time –, a steady increase in the intensity of intercantonal cooperation can be detected. Furthermore, cooperation concerning the tasks that were directly addressed by the NFA fundamentally varies from contracting in all other policy areas. The corresponding revised articles of the constitution – Art. 48 Cst and Art. 48a Cst – target a minor group of contracts. Though, these contracts have a stronger multilateral character than conventional intercantonal agreements.

The inferential statistics provided explanations of why cantons cooperate. The OLS regression showed that mainly population size and the relative number of commuters per canton drive intercantonal cooperation. Minor but not negligible factors are the executive-legislative relation as well as the societal homogeneity. The QAP then strengthened the previous finding that structural factors are highly explanatory with regard to intercantonal cooperation. It is rather the populous cantons and the ones that possess a different community type that cooperate. Furthermore, common language, common borders, common membership in regional conferences, and a short distance between the entities build the basis of intense intercantonal cooperation. However, also in this second step of the multivariate analysis a political variable matters: The same ideological affiliation of the executive branches promotes cooperation between the respective cantons. All in all, the findings confirm the theoretical expectations that were brought forth: Similarity and/or cost-benefit calculations are a central element that underlie collective action, also in the case of Swiss subnational resp. intercantonal cooperation.

However, several findings need further clarification. The descriptive analysis pointed towards intercantonal revenue and expenditure measures that give unprecedented insights into intercantonal cooperation. Furthermore, the multivariate analyses were thought of as a two-step procedure, explaining cooperation of each canton as a single unit as well as by taking cantonal dyads as the observations under conduct. However, the two steps were not linked in this paper. Other methods that do not execute the two stages in isolation but rather relate the different procedures to each other need to be applied.

A last question stands out that was brought up in the introductory remarks: how did the cantonal legislatures react to the increased institutionalization and importance of intercantonal cooperation? This question shall be tackled in the next step by applying qualitative analysis. The cantonal parliamentary structures shall be analyzed with respect to reforms that enhanced the means to take part in intercantonal negotiations over joint contracts. In several cantons the channels to directly participate when intercantonal agreements are negotiated by the executives have been improved (Strebel 2014). However, we do not know what exactly triggered these changes. We hypothesize that the NFA was one decisive force driving these processes. This is plausible also by referring to the literature on European integration and parliamentary reforms on the formal rules to take part in supranational politics (e.g. Benz 2017, Auel and Benz 2005, Raunio and Hix 2000).
References


Pearson, Karl. 1900. On the Criterion that a given System of Deviations from the Probable in the Case of a Correlated System of Variables is such that it can be reasonably supposed to have arisen from Random Sampling. *Philosophical Magazine* 5(50): 157–175.


