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ARTICLE

The governance of decentralised cooperation in collective training systems: a review and conceptualisation

Patrick Emmenegger[a], Lukas Graf[b] and Christine Trampusch[c]

[a]Department of Political Science, University of St. Gallen, St. Gallen, Switzerland; [b]Hertie School of Governance, Berlin, Germany; [c]Cologne Center for Comparative Politics, University of Cologne, Köln, Germany

ABSTRACT

Collective training systems are based on the cooperation of multiple public and private stakeholders in order to work. However, such cooperation is not self-sustaining and depends, for instance, on public policies, capable intermediary organisations and shared logics of action. In this conceptual paper, we first review the political economy literature on cooperation in collective skill formation and find that it has given insufficient attention to the systematic comparative analysis of cooperation at the decentralised level as well as the actual social practices of cooperation. The paper then develops a multidisciplinary analytical framework that allows future research to examine decentralised cooperation at the regional, sectoral and occupational levels more systematically. This framework is grounded in a synthesis of three strands of empirical research on vocational education and training, namely the comparative political economy literature on governance, corporatism and coordination, institutional labour and societal economics as well as the educational science literature.

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Introduction

In collective skill formation systems (Austria, Denmark, Germany, the Netherlands and Switzerland), individual firms, employers' organisations, educational organisations, employees' organisations and regional and federal public governance institutions cooperate in the processes of vocational education and training (VET). This is particularly visible in these countries' apprenticeship systems with their corporatist governance structures (Thelen 2014). If one wants to analyse the conditions, patterns and effects of cooperation in contemporary capitalism, collective skill formation systems are particularly interesting because they combine a public commitment to VET with a strong firm involvement (Busemeyer and Trampusch 2012). In terms of the

CONTACT Lukas Graf graf@hertie-school.org

governance of the skill formation system, however, the collective ones face the complex challenge of cooperation dilemmas. For instance, from a firm's perspective, as with other economic decisions, the choice to invest in training and contribute to cooperation in skill formation is susceptible to 'free riding'. Thus, if firms can easily poach skilled workers, investments in training are (seemingly) rendered inefficient, which may lead to a collective under-provision of training (Streeck 1989; Marsden 1999; Crouch 2005; Wolter and Ryan 2011).

In collective training systems, cooperation between multiple public and private stakeholders is important but not self-sustaining (Thelen 2004). It depends on deliberate public policies, shared logics of action and strong norms of cooperation. However, up to now, our conceptual understanding of the causes, patterns and outcomes of decentralised cooperation at the regional, sectoral and occupational levels is rather limited. One reason for this is that the political economy literature, which is especially interested in such collective action problems, has often focused on the analysis of the formation and governance of these training regimes at the *national* level, but less on how these systems work 'on the ground' (Culpepper 2003, 4; see also Streeck et al. 1987). While national-level analyses are central to make sense of these systems, much cooperation takes place at the decentralised level. For instance, studying the regional levels in France and Germany, Culpepper (2003) shows that public policies to support regional collective training structures require private information about barriers for firms to engage in training – and that states can best access such information through employers' organisations.[1] Another example is the finding by Gospel and Druker (1998) that the survival of apprenticeship training depends strongly on labour market structures and cooperation patterns within specific economic sectors.

Furthermore, social practices at the regional, sectoral and occupational levels can systematically deviate from formal rules that are, for instance, stipulated in national VET laws. This, in turn, can lead to a surprising amount of variation in how cooperation is implemented at the decentralised level. Decomposing the different layers of cooperation and focusing on actual behaviour rather than formal rules, this paper suggests a comprehensive multidisciplinary framework that is complementary to extant studies on cooperation in VET.

How can cooperation in collective skill formation systems be analysed and compared across regions, sectors and occupations? Who cooperates with whom and what is cooperation about? These are the central questions addressed in this paper. The foremost objective of this paper is conceptual. Building not only on a review of relevant secondary literature but also our own interview data (details below), we define and characterise decentralised cooperation in collective training systems and suggest a conceptualisation on which future comparative studies on the conditions, patterns and effects of this phenomenon might draw. Following Sartori (1970), we assume that

theory-guided concept formation is of crucial importance for comparative research because we can only investigate and explain phenomena of which we have formed a suitable concept able to grasp concrete realities in abstract terms.

This paper is structured as follows. The following section puts collective skill formation systems in a comparative perspective and summarises how previous political economy research on skill formation has conceptualised and analysed cooperation. Differentiating between efficiency-theoretical and institutional political economic accounts on collective skill formation, we show why cooperation stands at the core of collective skill formation systems and that significant support by non-market institutions is necessary. However, while both formal and informal institutions governing labour relations play crucial roles, systematic research on the actual practices of cooperation at the decentralised level is modest in much of the political economy literature on skill formation. In this context, the subsequent section develops a framework for the analysis of cooperation in decentralised collective skill formation systems, including an in-depth discussion of the relevant meanings of cooperation. In our conceptualisation, we bring together the comparative political economy literature on governance, corporatism and coordination with the literature on institutional labour and societal economics as well as the educational science literature on VET. We suggest that in order to analyse cooperation in skill formation, it is useful to distinguish between the core task areas of cooperation, the types and intensity of cooperation as well as the key levels, actors and likely conflicts of interest. In the final section, we conclude with a discussion of our key arguments. In addition, we emphasise that our conceptual framework may also be fruitfully applied to other areas of political economies in which actors face cooperation dilemmas within decentralised governance contexts.

Political economy research on cooperation in collective skill formation systems

If considered from the perspective of self-interested actors, systems based on intensive cooperation seem like an anomaly in modern capitalist systems. Nevertheless, in collective training systems, private actors often voluntarily cooperate with each other. This raises the theoretically and practically important question of how and by whom these systems are governed such that high levels of cooperation can be maintained. To address this question, we begin by reviewing existing political economy perspectives on cooperation in collective skill formation.

Typologies are necessarily simplifying but they help reducing the complexity of the real world. The comparative political economy literature on training systems (Finegold and Soskice 1988; Streeck 1992; Greinert 1993; Lynch 1994; Crouch, Finegold, and Sako 1999; Crouch 2005; Ryan 2000; Estevez-Abe,

Iversen, and Soskice 2001; Thelen 2004) differentiates national training systems alongside several dimensions of variation in the institutional design of training. Examples for such dimensions are the dominant learning site, the role of the state and the market in the provision of training, the degree of standardisation and certification of skills, the differentiation in the system of occupational degrees, the specificity of skills and the linkages between training systems and other socio-economic spheres – such as the academic education systems, industrial relations and the welfare state.

In collective skill formation systems, public commitment and firms' involvement are high and, accordingly, these systems display four specificities, which distinguish them from other training regimes (Busemeyer and Trampusch 2012, 14–15): First, they are based on dual training systems that combine school-based with work-based learning. Second, employers and their organisations are involved in the financing and administration of training, meaning that collective skill formation regimes presuppose inter-firm cooperation and employers that are willing to collective action – increasingly also at the post-secondary level of education (Graf 2016). Third, intermediary organisations – such as associations or unions that organise the interests of employers or workers – play an important role in the administration and reform of these systems (Culpepper and Thelen 2008). Finally, these systems lead to occupational skills that are portable as well as certified and standardised beyond the firm level. Due to this portability, these skills may lead to collective action problems, not only on the side of the firms but also of employees (Marsden 1999).

Hence, in collective skill formation systems, cooperation is not a matter of choice but a necessity because the different actors are strongly dependent on each other (Streeck 1992). The state can be assumed to provide funding to training institutions if these institutions improve social cohesion and the national economy's performance. Firms are likely to participate in training activities if they can expect to benefit from their involvement. Whether they benefit, however, is at least partially dependent on the behaviour of other firms. If other firms do not provide sufficient training, if the quality of training is low or if competition for prospective trainees increases its cost, firms might be better off not engaging in training activities (Culpepper 2003).

From this it follows that employers' organisations, serving as intermediaries between firms, can help 'to restrain free-riding on training costs' (Marsden 1999, 223). Likewise, some kind of collective organisation on the employees' side as well as collective labour agreements (CLAs) can be crucial, for example, to ensure the quality of training so that 'trainees are not exploited as cheap labour' (Johansen 2002, 305–306). As Ryan (2000) puts it, successful cooperation in apprenticeship systems involves '[…] employers' associations, trade unions, educators and government representatives in a joint, multi-layered regulation along neo-corporatist or "social partnership" lines'. Streeck et al.

(1987) and Ryan et al. (2013) have also shown that successful cooperation in initial training as well as the quantity and quality of training in the workplace (e.g. the actual level of apprentices' pay) can depend on works councils' activities. In the German case, works councils in general, and their youth and apprentice representatives in particular, can be seen as important on the ground enforcement units of labour interests (Streeck 1992; Dicke and Glismann 1996), which, however, represents an underexplored aspect in the literature. More generally, since actual cooperation can rarely be imposed by law but happens on the ground, it is likely to vary along regional, sectoral and occupational lines – which is a key motivation for this paper. Thus, informal, routinised practices of cooperation are likely to play an important role in collective skill formation.

In research on the political economy of skills, there are two main strands of literature that aim to understand cooperation in collective skill formation systems. First, there is economic research on labour markets in the tradition of rational-choice institutionalism, which explores training regimes from an efficiency-theoretical perspective. Second, there is scholarship in the tradition of institutional political economy, which highlights the role of sociopolitical foundations of cooperation in skill formation. We briefly present these two perspectives in turn.

The economic literature on labour markets and skill formation

The economic literature on labour markets shows that collective training systems are fragile institutional arrangements vulnerable to cooperation dilemmas, in which actors face strong incentives not to cooperate although they would better off if they did (Johansen 2002). More concretely, in the context of VET systems, employers' decisions to train or recruit skilled workers correspond to a prisoners' dilemma game with the under-provision of training as a Nash equilibrium. However, more cooperative outcomes are achievable if external authorities are in the position to punish employers who do not train, e.g. by way of compulsory membership in employers' organisations (or chambers such as in Germany) or extension rules (Wolter and Ryan 2011, 560). Cooperation dilemmas comprise, for example, the problem of workers with transferable skills moving horizontally across firms (poaching), the problem of metering (assessing workers' productivity) and the problem of transaction costs in the formation of co-specific skills (Becker [1964] 1993; Williamson 1981; Acemoglu and Pischke 1999; Estevez-Abe, Iversen, and Soskice 2001).

Because of these cooperation dilemmas, the economic literature highlights the importance of institutions but does so from an efficiency-theoretical point of view. For example, Williamson (1981) stresses the key role of active collaboration through 'relational teams' for firms' investments in highly specific skills. Williamson (1981), in his concept of asset specificity, also highlights that

bargaining institutions and unions may solve the governance problems of investments in specific skills, as he argues that a higher degree of human asset specificity makes it more likely that trade unions develop.[2] Acemoglu and Pischke (1999) emphasise that the willingness of firms to invest in training may be explained by labour market 'imperfections' such as low labour turnover due to employment protection. Extending Becker's ([1964] 1993) human capital account on the relationship between the portability of skills and firms' training investments, Estevez-Abe, Iversen and Soskice (2001) argue that companies' training activities depend on employment protection or other social protection policies. Following Williamson's asset theory, Iversen and Soskice (2009) point to the role of wage compression to solve collective action problems among firms in sustaining collective training systems. However, at a more general level, it is important to note that the focus of this economic literature on collective training systems is mainly on processes and structures of labour relations as consequences of skills, rather than labour relations as key determinant of cooperation patterns in training systems, on which this paper focuses.

The institutional political economy of labour markets and skill formation

Criticising this efficiency-theoretical perspective as functionalist and ahistorical (Streeck 2012), institutional political economy views cooperation in training regimes from a broader perspective or, as Maurice, Sellier and Silvestre (1986) put it, in a 'societal' framework. This societal framework was mainly developed inductively, thus distilled out of empirical qualitative cross-country research on training systems. It finds that the formation and development of collective training systems is not so much shaped by firms as rational actors but that these processes instead interact with institutional underpinnings created and maintained by the state as well as the formal and informal non-market institutions governing labour relations. This strand of research points out that in the absence of 'co-ordinating institutions on a supra-firm level' (Baumann 2002, 30), the collective training regime cannot be maintained and stabilised (Cognard 2011). Marsden (1999, 213) also states that labour market institutions are 'logically prior' to occupational labour markets. Similarly, Streeck (1989, 96–97) notes that, as economic decisions are inherently decisions taken under uncertainty, collective resources are a necessary condition for employers to invest in broad, unspecific skills as a polyvalent resource essential for modern industrial production. In this context, collective resources refer to the institutional support provided by, for instance, collective bargaining institutions, public policies or networks (Crouch 2005).

Representatives of this institutionalist strand of research can be found in various literatures, such as labour economics (Kerr 1954; Marsden 1999; Ryan 2000), the sociology of work and industrial relations (Maurice, Sellier, and

Silvestre 1986; Streeck 1992; Crouch 2005) and historical-institutionalist research on skill formation (Thelen 2004; Busemeyer and Trampusch 2012; Martin and Swank 2012). For instance, scholars of historical institutionalism have emphasised the key role of the public sector and public policies in fostering and maintaining cooperation both by providing the necessary infrastructure and resources at the local level but also by shaping private actors' strategic interests. Among other things, such institutions and activities facilitate information exchange and allow for trust building. Several studies informed, for instance, by the British–German contrast of the respective low versus high skill equilibria examine the institutional foundations that can explain the failure and success of firms to train high-level skills (Marsden and Ryan 1990; Marsden 1999; Finegold and Soskice 1988; Gospel 1994; Bosch and Charest 2008).

Criticising neoclassical labour economics and its view of 'one' labour market, Kerr (1954), for example, shows that labour markets are not 'structureless' but in fact segmented into differently institutionalised sub-labour markets and that collective actors and their bargaining strategies determine these frontiers (see also Blossfeld and Mayer 1988). In a similar vein and by referring to the German industrial apprenticeship system, in his 'theory of employment systems', Marsden (1999, 213) highlights that 'transaction rules' which may be generated by employer associations, chambers, unions, works councils and collective agreements are a 'necessary condition' for firms' and employees' investments in occupational skills while 'the reverse does not apply'.

Marsden (1999, 248) argues that to understand the working of collective systems on the ground, the institutional support by employers' organisations, trade unions and CLAs deserves special attention. With regard to the workplace and inter-firm institutions, not only local employers' organisations and employees' representatives (unions and works councils) but also collectively bargained rules have to be scrutinised. The support these institutional underpinnings provide are manifold and affect the financing and quality of training, in direct as well as indirect ways, through CLAs on apprentices' wages, job classification, skill-based salary classification, standardisation, portability, accreditation or training levies for firms (Mathews 1993; Heyes 1993; Heyes and Rainbird 2011; Trampusch and Eichenberger 2012; Ryan et al. 2013). Crouch (2005) further highlights that local networks may support not only firms' commitment but also employees' engagement in skill formation and that this is particularly important in regions and sectors in which small and medium sized firms dominate as well as in new rapidly growing branches (Baumann 2002).

The Swiss and German training systems can be viewed as prototypical examples for these implicit effects of labour relations on collective training systems. In this context, Streeck (1989) argues that because VET requires from young individuals to 'accept the long deferral of gratifications that is the

essence of investing', for them training 'presupposes a degree of certainty as to what one is likely to need and value in the future' (Streeck 1989, 92). This certainty is provided by social institutions such as the *Beruf* (occupation) and collective industrial relations, which both may provide the collective resources that make utilitarian behaviour and collective action in markets possible.

However, with regard to these institutional underpinnings, there is also strong variation, not only across countries (Ryan 2000; Bosch and Charest 2008) but also across different levels such as regions and sectors (Gospel and Druker 1998; Culpepper 2003; Crouch 2005; Bechter, Brandl, and Meardi 2012). For instance, in the German case, the chambers and the works councils are further key factors providing institutional support for collective action (Streeck 1983, 1992; Culpepper 2003), while in Switzerland some of these organisations' functions are fulfilled by cantonal vocational training offices (Swiss Vocational Training Act, Art. 24).[3] We consider such variation an interesting empirical phenomenon that needs to be analysed in depth if we want to understand patterns and causes of cooperation in VET in greater depth.

Synthesis

The focus of the rational-choice-based economic literature is typically on governance of training regimes at the national level. In contrast, the institutional political economy literature acknowledges the 'multilayered regulation' context of collective training systems (Ryan 2000, 43). Differing causal explanations notwithstanding, both highlight that the solution to collective action problems in the provision and financing of transferable skills requires institutional support. In this context, we agree that strong institutional structures may not only be generated by the state and public policies but also by labour market institutions like employers' associations and chambers (in Germany), local networks, works councils, trade unions and CLAs. We therefore argue that any conceptual framework that systematically addresses cooperation at the decentralised level must embrace such institutional underpinnings, including those provided at the sectoral, occupational or regional levels.

Concept formation: analysing decentralised cooperation in collective skill formation

How can we conceptualise decentralised cooperation in collective skill formation as well as describe and explain variation in the extent, type and effects of cooperation? In the social sciences, there is no generally accepted definition of the 'cooperation' concept. Bringing together the comparative political economy literature on governance, corporatism and coordination (in VET and other political economic spheres) with institutional labour and societal economics as well as the educational science literature, we suggest a conceptualisation of

decentralised cooperation in collective skill formation that focuses on regional, sectoral and occupational variation. This conceptualisation is based on a dynamic interplay of deductive and inductive research steps (Goertz 2006). On the one hand, our approach builds on multidisciplinary analytical considerations on cooperation, in general, and research on VET, in particular. On the other hand, we have carried out various in-depth interviews with stakeholders and experts of collective training systems.[4] These interviews have enabled us to explore central concepts in relation to our theoretical considerations and consolidate the core task areas in cooperation presented below. Hence, we were able to ask our interviewees, for instance, how they think about cooperation in VET, what core task areas they consider most important and what major challenges to cooperation they perceive in this regard. In addition, these interviews with stakeholders and practitioners were indispensable in identifying variation in social practices at the regional, sectoral and occupational levels, which sometimes strongly deviate from formal rules stipulated in national VET laws. In our own previous thinking, we had adopted a rather systemic and national perspective on VET governance. The interviews provided plenty of evidence to convince us that such a perspective is incomplete.

In the comparative political economy literature (Hall and Soskice 2001; Hollingsworth and Lindberg 1985; Hollingsworth and Boyer 1997; Martin and Thelen 2007; Mayntz 2004; Ornston and Schulze-Cleven 2015; Powell 1990; Streeck and Kenworthy 2005; Streeck and Schmitter 1985; Williamson 1981), cooperation is typically analysed in terms of 'governance', 'corporatism' and 'coordination'. There are multiple definitions of these concepts, but in our framework, we apply the most common ones. The term governance typically refers to modes of governing socio-economic activities through the state, firm hierarchy, networks, associations or the market (Hollingsworth and Lindberg 1985; Hollingsworth and Boyer 1997; Streeck and Schmitter 1985; Powell 1990; Williamson 1981; Mayntz 2004). Corporatism – as a narrower concept – refers to situations in which parliamentary representation shares 'the public space with social groups organised on a more voluntary basis and entitled to various forms of collective participation and self-government' (Streeck and Kenworthy 2005, 441). Finally, coordination typically refers to the organisation of activities to enable actors to work together effectively (Hall and Soskice 2001). While some authors use the term coordination exclusively to denote enterprise coordination in production processes (Ornston and Schulze-Cleven 2015), others apply it also to capture the coordination of employers' associations in activities such as collective bargaining (Martin and Thelen 2007).

The educational sciences literature on VET has also shown explicit interest in the concept of cooperation, for instance, in studies investigating how learning sites (i.e. vocational schools and firms) cooperate or how curricula are developed and implemented (Buschfeld and Euler 1994; Pilz 2009; Frommberger and Krichewsky 2012; Sloane 2014). Therefore, our approach to analysing

cooperation aims to enrich the comparative political economy literature on cooperation in skill formation with the educational science literature on cooperation and VET.

Given that cooperation varies by specific task areas, in the following, we first establish the core task areas within the empirical field of interest. Once the core task areas are identified, it is possible to explore the types and intensity of cooperation, the relevant decentralised levels, the respective actors involved in cooperation and the related central conflicts of interest. The advantage of starting the analysis with a mapping of the core task areas is that this allows for the comparison of how cooperation is operating and varying for different tasks fulfilled in different regional, sectoral, occupational and national settings, each with its possibly specific actor and conflict constellation.

Core task areas of cooperation

We derive the core task areas in VET cooperation both from the existing VET literature (Streeck et al. 1987; Wegge and Weber 1999; Busemeyer and Trampusch 2012) and inductively from our own previous empirical investigations as well as expert interviews. Concretely, we distinguish between six such areas: (1) system development, (2) content definition, (3) financing, (4) organisation of training provision, (5) matching of demand and supply and (6) monitoring, examination and certification. Multiple studies exist on each of these task areas – in fact, too many to list them here – but few studies have attempted to provide a systematic overview on these different task areas. By way of synthesis, we argue that these six areas reflect the core governance functions that a collective VET system needs to perform to enable successful cooperation in skill formation.

This distinction is inspired by Streeck et al. (1987), who explored the functional areas of 'regulation' (or goal definition), 'implementation and administration', 'financing' and 'monitoring' in their seminal study of the role of the social partners in the steering of the German dual VET system. Similarly, Wegge and Weber (1999) differentiate between 'the structuration of the content of learning', 'the organisation of the provision of training', 'modes of financing', 'observation and monitoring' and 'the matching of demand and supply'. Like Wegge and Weber (1999), we add the increasingly critical area of the matching of demand and supply to the list of core functional areas suggested by Streeck et al. (1987).

Furthermore, while Streeck et al. (1987) speak of the 'regulation' of the definition of goals, contents and requirements and Wegge and Weber (1999) of 'the structuration of the content of learning', we split up this task area into system development (mainly located at the national level) and content definition (often taking place at the sectoral and occupational levels). In this context, we assume the existence of *higher level* and *lower level* cooperation challenges,

with the former referring to the establishment of policy goals at the macro level (here national level) and the latter to that of their more concrete implementation (Øverbye et al. 2010). This distinction allows us to account for the key research theme identified earlier, namely the analysis of the strong regional, sectoral and occupational elements in the governance of collective skill formation systems. Furthermore, it relates to the potentially critical gap between formal rules and actual practices on the ground. That is, to cope with complex governance tasks, actors often rely on loose coupling between, on the one hand, standardised, legitimate external practices and formal structures 'frontstage' and, on the other hand, practical considerations and actual internal organisational behaviour 'backstage' (Meyer and Rowan 1977, 357). To name just one example, apprentices, especially those in small firms, sometimes have to perform tasks not related to their official training ordinance (DGB 2017, 17). The extent to which such loose coupling occurs may vary considerably depending on the internal characteristics and contingencies linked to specific core task areas. Thus, some of these task areas may operate mainly at the level of formal rules and others more at the level of practices.

While the core task areas (1) and (2) reflect the stages of cooperation that define the structure for VET, the areas (3) and (4) are mainly concerned with the actual operation of the VET system. Area (5) is about the financing of the different elements of the system, whereas area (6) represents the 'final' stage of system and quality control:

(1) *System development*: strategic development of the VET system, including the reform of significant (macro-)elements and, thus, policy change by legislative decision making;
(2) *Content definition*: concrete formulation of goals and contents of learning in VET (e.g. ordinances, vocational profiles and curricula);
(3) *Organisation of training provision*: implementation and administration of VET and of the concrete means and processes needed to put training to work (e.g. instructor training, teaching material and learning site cooperation);
(4) *Matching of demand and supply*: organisation of processes that link individual educational aspirations and employers' needs for skilled labour;
(5) *Financing*: distribution of resources and negotiations about who should pay how much and for which parts of VET and regulation of apprentices' wages;
(6) *Monitoring, examination and certification*: quality control as well as maintenance of transparency and portability of VET qualifications.

It should be noted that depending on the specific research question and case selection at hand, one or more specific governance tasks within each of

these areas can take centre stage. For example, in the area of matching, it will depend on the particular challenge at hand whether the core governance problem is to improve the mechanisms that serve to bring apprentices and employers together or rather to increase the number of training places offered by firms. Furthermore, the relationship between the six task areas can involve major complementarities. For instance, if vocational profiles are reformed to emphasise general and transferable skills (task area 2), then, to incentivise training, the share of the training costs carried by the training firm is likely to fall relative to that of the apprentice or public agencies (task area 5).

Types of cooperation

Cooperation is at the centre of collective skill formation and the related core task areas. Following Bowman (1982), cooperation may be defined as the 'joint pursuit of a common interest'. Importantly, not all interactions between actors can be considered cooperation. Rather, cooperation implies that actors (knowingly) act together towards a common end. In addition, cooperation contains a strong element of *voluntariness*. For instance, in hierarchical relationships, actors can be made to work together. However, such an interaction cannot be considered cooperation in a strict sense. Hence, cooperation is a more demanding form of interaction.

There are different types of cooperation. Before developing these in detail, a few general notes on cooperation are warranted. Most importantly, it is necessary to distinguish between cooperation as informal, routinised practices and more formalised forms of cooperation. In the latter case, cooperation is usually codified by acts or CLAs. However, both informal and formal forms of cooperation can reduce uncertainty. In addition, even in rather strongly formalised forms of cooperation, it is possible that the actual practice of cooperation diverges from the respective formalised policies and rules (Mulcahy 1998). As a result, cooperation can vary in the degree of formalisation and the extent of loose or tight coupling between formal rules and practices on the ground.

Keeping these considerations in mind and inspired by Buschfeld and Euler's (1994, 10) concept of analysing learning sites cooperation, we distinguish between three major types of cooperation, namely information exchange, coordination and collaboration. Importantly, these types reflect different intensities of cooperation, with information exchange being the weakest and collaboration the strongest form of cooperation.

Information exchange: Collective training systems need information to work. However, information may be, although important, not publicly available. Hence, one simple form of cooperation may consist of creating and sharing information, for example on the availability of training places or the content of training, 'in order to reach a mutual understanding' (Rogers 2003, 3–4). Information exchange may lead to deliberation. Following Culpepper (2003,

280), deliberation involves capacities for the negotiation and resolution of disagreements by means of a reflection on the strategy to be pursued in a given situation. In order to qualify as cooperation, deliberation presupposes the ability for actors to pursue and modify their positions in negotiations. Hence, deliberation involves a reflection about possible strategies, an attempt not only to find an agreement but also the willingness to modify one's own position if new arguments emerge. A typical example of cooperation by means of information exchange and deliberation is the creation of expert commissions to tackle challenges.

Coordination: Information exchange is the most basic form of cooperation and does not imply that actors necessarily act upon receiving the information. In contrast, we use the term coordination to denote situations in which actors mutually adjust their behaviour upon the exchanged information. The crucial (additional) element compared to information exchange is thus that coordination includes mutual adjustment of behaviour that is different from the behaviour the actors would have pursued if their decision-making were unilateral (Webb 1995, 11). Following Bakvis and Juillet (2004, 8), coordination can be defined as the practice of aligning complex structures and activities to facilitate the likelihood of achieving objectives and to ensure that these objectives are not impeded by the actions of one or more other actors.[5] For instance, in the example mentioned above, coordination does not only involve exchanging information about the availability of training places but also leads to interactive coordination action such as the reduction of available training places to avoid an oversupply.

Collaboration: A problem of most of the comparative political economy and the educational sciences literatures is that it remains elusive at what point cooperation becomes more than mere coordination. If firms cooperate in research and development by using a joint laboratory, is the term coordination still sufficient to adequately describe this interaction? Borrowing from organisational theory, we refer to cooperation as collaboration when two or more actors act jointly. More precisely, following Bardach (1998, 8) and Huxham (1996, 1), we define collaboration as any joint activity by two or more actors working together that is intended to create some mutual benefit by their working together rather than separately. For example, through collaborative network structures, actors may engage in cooperation through reciprocal, preferential and mutually supportive actions (Powell 1990).

Levels in cooperation

National legal frameworks constitute essential foundations for multilayered regulation in collective VET systems and the related types and intensities of cooperation. However, countries with dual training systems differ with regard to the degree of fragmentation of the national-level governance system

(Rauner 2009). In this context, we expect cooperation to be systematically structured by three key decentralised governance levels, namely regions, sectors and occupations. This is not least due to national legal VET frameworks still leaving space for institutional innovation and cooperation patterns at these decentralised levels (Gonon 2010).

To begin with, it should be noted that the term 'decentralised' does not preclude national-level standards and rules. Instead, for us the term 'decentralised' refers to a specific segment of cooperation (located at the regional, sectoral or occupational levels) rather than the system as a whole. In VET research, there have been several studies illustrating the value of comparisons of decentralised VET governance: Steedman, Wagner and Foreman (2003) compared ICT training in four sectors – financial services, retailing, motor manufacture and software development – in Germany and the United Kingdom. Bremer (2008) analysed skill requirements and training programmes in the aircraft and space industry in France, Germany, Spain and the United Kingdom. Carré et al. (2010) examined two occupations, cahiers and salespeople, within food and consumer electronic retail in six countries. Brockmann (2011) studied VET for nursing and software engineering in England, France, Germany and the Netherlands. Clarke (2011) compared occupational labour markets for the same four countries. Ryan et al. (2011) explored financial aspects around apprenticeship pay and corporate ownership across two sectors (metalworking and retailing) in Britain, Germany and Switzerland. In their cross-sectoral comparison on employers' cooperation in financing and providing higher vocational training in Switzerland, Di Miao and Trampusch (2017) reveal major variation in the intensity of this cooperation between the construction and metal and mechanical engineering sector, on the one hand, and the pharmaceutical and chemical and banking sector, on the other.

The relevance of comparisons at the decentralised level also extends to countries that do not belong to the group of collective skill formation systems. For example, Fuller and Unwin (2003) analysed the UK's approach to creating contemporary apprenticeships and found that the conditions for such apprenticeships vary strongly by sector. Billett and Seddon (2004) studied social partnerships in VET at the local community level in Australia. Turbin, Fuller and Wintrup (2014) compared barriers and opportunities in two occupations within the English healthcare sector.

Our heuristic for the systematic study of decentralised cooperation in collective skill formation starts with the four levels proposed by Streeck et al. (1987), namely the *local level* consisting mainly of firms and schools, the *regional level*, the *sectoral level* and the *national level*. In this context, the regional level refers to subnational units above the local level. The exact definition of a region is, however, a function of the core task area. For instance, in an analysis of the task area of monitoring, the regional level might refer to legal-administrative regions, such as the Swiss cantons. In contrast, for an

analysis of the matching of demand and supply, the appropriate regional level might transcend legal-administrative boundaries and refer to regional labour markets (including cross-border labour markets).

Importantly, we add a fifth level, namely the *occupational level*, given the historical relevance of occupations as structuring elements in the socio-economic set up of collective skill formation systems (Streeck 1989). For instance, on the German case, Georg (2000) states that 'the occupation has become established as the central institution with the greatest impact on structuring the world of work'. Crucially, the sectoral and occupational levels are often crosscutting. While there can be multiple occupations within a sector, some occupations are present in multiple sectors. For instance, Emmenegger and Seitzl (2018) show for Switzerland how clerical training is organised along occupational lines, while crosscutting multiple economic sectors. In fact, sectoral differences with regard to skill requirements (e.g. financial services versus small and medium-sized enterprises in manufacturing) have led to a prolonged struggle over the governance of clerical training, ultimately resulting in a new multisectoral governance body responsible for content definition. Hence, in many cases, occupations and sectors must be analysed separately, although it is worth emphasising that their relative importance varies between countries. In this context, it is also key to establish whether the main actors involved in cooperation can be associated with an occupation (or occupations), sector (or sectors) or a mix of both.

The different levels in cooperation are not always clear-cut and can intersect with other levels in specific policy areas. For example, in the case of VET content definition, intermediary organisations organised along occupational lines might be primarily responsible. However, the resulting VET ordinances may need approval by federal public governance institutions. In addition, there can be important cross-national differences. For instance, while in some countries (e.g. Germany) institutional differences are often structured along sectoral lines, occupational differences play a more important role in other countries (e.g. Switzerland). This variation, again, demonstrates the importance to differentiate between different levels in the comparative, empirical analysis of cooperation in collective training systems.

Actors in cooperation

With regard to actors engaged in cooperation in the core tasks areas and at these various levels, we start from Kerr's (1954) concept of the balkanisation of labour markets. In his classical analysis of the role of skills in structuring the US labour market in craft and industrial labour markets in the 1950s and earlier, Kerr (1954) maintains that the supply of and demand for skills are not 'independent variables which simultaneously determine the wage and the volume of employment' but that demand and supply of skills as well as

wages 'all respond to more or less control by the bargaining institutions'. Labour markets are balkanised by five sources of barriers that 'divide the totality of employment relationships into more or less distinct compartments': the 'individual preferences' of workers as well as firms, the 'actions of community of workers', the 'community of employers' and the government (Kerr 1954, 96). More generally, this line of thinking is connected to the argument made in the institutional political economy on skill formation, namely that it is crucial to understand how such actors are embedded in the institutional configuration of labour relations at the national and decentralised levels.

We not only follow Kerr's conceptualisation but also depart from it by integrating insights from educational science and related disciplines. In this context, first, we emphasise that state actors at different federal levels can be effectively independent from each other and should thus be conceptualised as separate actors. Hence, to be able to address multilevel coordination challenges (Øverbye et al. 2010), our framework distinguishes between federal and regional public governance institutions.

Second, educational organisations (i.e. educational providers, like schools and their various associations) can be important actors in VET governance in their own right. Although educational organisations are to some extent part of the actor group from which they originate (e.g. when schools belong to regional public governance institutions), they are often highly autonomous actors (Leemann et al. 2016). In this sense, educational organisations and firms are conceptualised as two actors that – as providers of the two core locations of training – are not only subject to governance measures by other actor groups but are also actively involved in shaping the VET system through their interaction with other actors.

Third, given our focus on the governance of cooperation, individual apprentices (trainees) and teachers (trainers) are only relevant to the extent that they become part of the collective governance of the VET system through their respective interest organisations. In rare cases, dissatisfied apprentices have organised independently with the goal to shape training conditions (Wolter and Ryan 2011, 567–568). Furthermore, changing individual educational choices (e.g. towards higher level academic education) can challenge VET governance. Yet, apprentices as such are typically not part of the governance system. In the case of teachers, their interests are usually not only represented by their employee organisations but also through their engagement in educational organisations, which, in turn, are represented in VET governance through their regional or federal associations.

Fourthly, we stress the possibility of hybrid organisations that straddle the boundaries between otherwise separated institutional actors. For instance, in corporatist systems, there sometimes emerge intermediary organisations that take up and represent the interests of both employers and employees. Hence,

these organisations span the boundary between employers' organisations and employees' organisations.

In sum, we argue that an analysis of cooperation in collective skill formation systems should consider the following six actor groups (and, if applicable, their hybrid subtypes): individual firms, employers' organisations, educational organisations, employees' organisations (e.g. trade unions and works councils), regional public governance institutions and federal public governance institutions.

Conflicts in cooperation

Given the multiple purposes of VET (Bathmaker 2013), core actors often have multiple and varying interests depending on the specific context in which they operate. This context, in turn, is influenced by various factors, such as the core task area of cooperation and the level of analysis. It is certainly possible to make assumptions about the role specific actors would typically adopt in a known context. For example, firms in capitalist markets typically have to conform to cost-benefit calculations, while public educational organisations are often more inclined towards social inclusion. However, in collective skill formation, the specific institutional environment may place beneficial constraints (Streeck 1992) on firms to act on collectively shared social norms that make firms partly transcend purely profit-driven short-term motives. Similarly, those actors that are typically assumed to act in the interest of the collective good, such as educational organisations, trade unions or state agencies, may in some contexts focus rather on the perspective of economic utility or organisational survival. Thus, the interests that shape a specific actor's (non)cooperative behaviour have to be explored empirically.

Be that as it may, the resulting conflicts of interest can undermine cooperation depending on the degree of divergence between the goals of these central actors. Most importantly, however, even when VET actors manage to cooperate despite potential conflicts, successful cooperation still has distributional implications. For instance, the literature on the political economy of collective skill formation has shown that large and small firms have different preferences with regard to issues such as learning content and financial investments (Culpepper and Thelen 2008; Trampusch 2010; Lassnigg 2011). Hence, even if cooperation succeeds or a compromise is found, there might still be winners and losers. In addition, high levels of cooperation do not imply that there are no societal costs. Thus, successful cooperation between private actors does not necessarily mean that the resulting regulations and practices are beneficial for trainees or for society at large. Put differently, in collective training systems, cooperation between actors such as firms, state agencies and intermediary organisations is essential but such cooperation does not imply that all actors are able to achieve their economic and social goals.

Conclusion

The purpose of this paper was to provide an overview of the relevant literature on cooperation in collectively organised VET systems and, building on this, to develop a conceptual framework for the analysis of cooperation at the decentralised (i.e. regional, sectoral and occupational) levels. We argue that such a conceptual framework is key to understand governance in collective skill formation systems, given that a significant part of the cooperation in these systems takes place at these decentralised levels. Our concept seeks to move beyond the national and formal bias of some of the previous political economy literature by directing our attention to social practices of cooperation on the ground.

Further research can refer to our proposed multidisciplinary conceptual framework not only to describe variations of cooperation among collective skill formation systems but also to explain variation and scrutinise outcomes. For instance, previous research has shown that the Swiss collective dual system is more employer-dominated than the German system, with Swiss trade unions involved in the system development task at the national level but only marginally in the different tasks mainly located at the decentralised levels such as monitoring, examination and certification or the organisation of training provision (although with relevant differences between occupations). One possible explanation for this difference in decentralised cooperation might be that in the Swiss VET system, sectoral CLAs play only a minor role in fixing apprentices' wages and their working conditions. In contrast, in Germany, sectoral CLAs have regulated apprenticeship issues already in the Weimar Republic and therewith might have generated a shared norm of cooperation between employers and unions also in the administration of operational tasks (Thelen 2004; Trampusch 2014; 168–169). With reference to the outcomes of such differences in cooperation grounded in CLAs, one could examine whether a strong institutionalisation of employer–union cooperation through CLAs inclines labour market partners to promote the goal of social inclusion of disadvantaged youth, for instance by exploring variation in employer–union cooperation across occupations.

The proposed conceptual framework can also be helpful when framing studies of how collective skill formation systems deal with socio-economic trends that can undermine cooperation (Culpepper 2003; Thelen 2014; Gonon et al. 2016), such as digitalisation, internationalisation, migration and demographic change. By applying the framework, it is possible to compare how decentralised collective systems respond to these current challenges that ultimately change the demand for skills, the educational choices of individuals and the relative power of different (and partly new) actors and actor groups at the different levels of cooperation. Importantly, in these situations, the system-inherent challenges of decentralised cooperation are likely to come to the fore,

because they have distributional implications and thus might undermine collective action. It is thus essential to understand how collective actors deal with these problems and maintain high levels of cooperation across the various regions, sectors and occupations.

While the propositions made in our framework primarily apply to the complex governance of decentralised collective skill formation systems, at least some of them may also be fruitfully applied to cases outside of the fields of skill formation and coordinated market economies. Thus, the framework may be more generally helpful for the analysis of those areas of political economies in which actors face cooperation dilemmas within decentralised governance contexts. Here, our suggestion is to first establish the core task areas within the empirical field of interest. On this basis, it should be possible to explore for each of these core task areas the dominant types of cooperation, the levels of cooperation and the actors of cooperation – including their main interests and possible conflicts. The key advantage of starting the analysis with a mapping of the core task areas is that this allows for the 'cross-task area' comparison of how cooperation is operating in different regional, sectoral, occupation and national settings, each potentially characterised by a particular actor constellation.

Notes

1. Please note that in this paper, the term 'employers' organisations' is used flexibly to do justice to the variety of such organisations – including employers' associations and chambers – in collective skill formation systems.
2. It is important to highlight that there are conceptual differences between Becker's and Williamson's definition of skill specificity which are often neglected. In Williamson's (1981) transaction cost theory, asset specificity refers to whether 'investments are specialised with regard to a particular transaction' or 'unspecialised' among buyers or sellers of the respective asset. Accordingly, he views 'human assets' as specific (co-specific due to the bilateral exchange relation) if skills 'are deepened and specialised to a particular employer', so both the employer and the employee are interested in 'maintaining a continuing employment relation'. Neither the employer nor the employee can terminate the relationship without 'loss of productive value' (Williamson 1981, 563). While specific skills (human assets) are linked to high transaction costs, general skills are unspecific assets, which are connected to low transactions costs because these human assets can be used for various purposes and are valuable to a large number of users. Williamson (1981, 563–565) also claims that besides asset specificity, the uncertainty of measuring productivity as well as the nature of skills (in the sense of skill levels) are also decisive factors for whether a human asset governance problem arises or not. Williamson (1981) makes clear that bargaining institutions and unions may solve these governance problems of investments in specific skills as he argues that a higher degree of human asset specificity makes it more likely that trade unions develop. The Varieties of Capitalism literature largely follows this efficiency theoretical perspective and contends that specific skills are only provided and trained when investments are 'protected' by wage

compression, employment protection or social insurance, while firms' investments in lower degrees of skill specificity, thus general skills, are much less problematic.

3. The chambers are, for instance, key in monitoring firms' eligibility to train and the level of skills achieved by apprentices (Dicke and Glismann 1996). Furthermore, the German chambers represent a highly differentiated associational system that facilitates decentralised cooperation despite the sectoral, occupational and territorial differences related to firms' interests in training (Streeck 1992; see also section on 'Levels in cooperation').
4. Ten semi-standardised interviews were carried out with nine stakeholders from federal and cantonal state agencies (4), employers' and occupational organisations (2), trade unions (2) as well as two independent experts. They were conducted in Switzerland, which is the country with 'proportionally the world's largest apprenticeship system' (Ryan 2012) and, hence, particularly relevant for an analysis of decentralised governance in collective skill formation. In addition, this paper is informed by several dozen expert interviews carried out in Austria and Germany within the framework of our previous research on collective skill formation (e.g. Trampusch 2010; Graf 2013). List of interviews: A: 19-01-2016 (Bern), B: 19-01-2016 (Zurich), C: 21-01-2016 (Bern), D: 25-01-2016 (St. Gallen), E: 26-01-2016 (Zurich), F: 26-01-2016 (Bern), G: 27-01-2016 (Bern), H: 27-01-2016 (Zurich), I: 28-01-2016 (Bern) and J: 01-09-2016 (Bern).
5. It is also possible to differentiate between types of coordination. For instance, Lange and Schimank (2004, 20) distinguish between coordination based on (a) the observation of others' action (constellations of observation), (b) the targeted use of means of political influence (constellations of influence) or (c) the bilateral elaboration of arrangements (constellations of negotiation).

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ORCID

Lukas Graf http://orcid.org/0000-0002-1447-4165
Christine Trampusch http://orcid.org/0000-0003-1024-2065

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