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Issues of governing and control in vocational education and training (VET) systems – established old and newly developing apprenticeship systems compared.

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Issues of governing and control in vocational education and training (VET) systems – established old and newly developing apprenticeship systems compared.

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Abstract

The contribution builds on previous analyses of problems in vocational education and training (VET) governance in different countries, with established dual apprenticeship systems (Austria, Germany) and newly emerging apprenticeship systems (Italy, Hungary). On background of qualitative analyses of key problems in the selected countries the main governance problems were identified and compared. A common ground for all cases is the defense or establishment of a collective skill formation systems build around the model of dual apprenticeship that has become a main proposal in international policy making. This presentation takes a deeper look at the issues of control in the particularly complex governance systems of dual apprenticeship.

The theoretical perspective of historical institutionalism as well as much empirical research about the political attempts of transfer of dual apprenticeship systems has emphasized the multitude of included actors with different, and to some part conflicting, interests that are consequently involved in much activity of negotiation and conflict resolution. We expect that the politics of control in the current wave of the Global Educational Reform Movement (GERM) cannot be easily established in collective skill formation systems. Moreover, the drive towards privatization can only partly affect this kind of system. On the one hand training enterprises are main private actors; on the other hand, collective skill formation can only work effectively if it is embedded in corporatist structures of interest and conflict resolution supported by the state. So, the political attempts toward the international and European spread of the dual apprenticeship system can be seen to some part as an attempt towards privatization by embedding the enterprise sector in the skills formation system; however, because of its collective aspect, privatization can only be limited.

Basically, we use our previous analyses of governance problems, mainly case studies on national level, to reflect on the limits of establishing the newly emerging practices of control. So, we give mainly a new focused interpretation of our material. Main conclusions are that the relation of governing and control works precariously in all cases; in two of the cases (Germany, Hungary) strongly established mechanisms of (central) control turn out as counterproductive, as the practices and initiative of local actors are damaged by too much control; in the other two cases (Austria, Italy) the attempts to establish stronger political control over the development of the system have failed due to the complexity of the governing structures that eluded the attempts of establishing control.

Keywords

governance, vocational education and training, apprenticeship, centralization, localization, responsibility,

1 Introduction

This chapter is based on a previous work that focused on a collection and comparison of main governance problems in vocational education and training in countries that were defending or developing collective skill formation systems (Lassnigg et al. 2018). The previous analysis has been extended by first considering broader approaches towards governance that are found in current literature and are used as a background of the CESE conference, Second, in this broader horizon we have refined the interpretation of the findings and updated the Italian case using new literature.

The dynamic of power and influence in education constituting new complex relations between global processes and actors vis-à-vis national policies and practices as well as the changing modes of control in education find special expressions in vocational education and training (VET) systems, policies and practices. Since decades the recurrent and enduring global crises with youth employment and unemployment have inspired various transnational players (G7, OECD, ILO and others) and more recently the European Union, to propagate and support policies in the direction of building VET systems based on models of dual apprenticeship that combine education, training and work in institutionalized forms, with Germany as a paradigmatic case. Several countries and players have adopted such policies and much comparative research has been done to analyze the attempts and experience in this direction, with diverse and ambiguous results and recommendations (Euler 2013; Li & Pilz 2023; Caves et al. 2021). The new modes of control (accountability regimes, large-scale assessment systems, surveillance mechanisms, data infrastructures) that have been mainly developed for state led education systems and can influence practices and redefine relationships between actors and knowledge in these systems are more difficult to apply in the multi-level and multi-stakeholder systems of VET. So. we can find indeed separate discourses and research reviews on the one hand in the fields of overall, general, and higher education that are more longstanding and broader and more differentiated, whereas in the field of vocational education research reviews have emerged more recently, covering more specific issues (Clarke et al. 2021; Gessler et al. 2021). This separation, however, is counteracted by the policy towards a dual apprenticeship system, because such a system must create a sustainable linkage between the general and the vocational education system, and thus creates several additional complexities that become visible in the analyses of the country cases.

This chapter focuses on a comparative analysis of problems of governance and control in four countries that are defending (Germany, Austria) or developing (Italy, Hungary) dual apprenticeship systems in VET. It is structured by three main sections. First, the context is briefly described, considering the diversity and blurring boundaries of vocational education in a comparative perspective and within VET the role model of a collective skill formation system. Secondly, a review and reflection on governance and control in VET follows at the theoretical level that embeds the concept of collective skill formation in broader conceptions. In the third section the research about the governance challenges in collective skill formation systems are compared, looking at policies in old (Germany, Austria) and new structures of apprenticeship (Italy, Hungary). The main research question is which main challenges to governance and control arise in approaches towards dual apprenticeship in a comparative analysis based on broad theoretical perspectives on governance. Some conclusions round up the chapter.

2. Context: Diversity and blurring boundaries of vocational education (VET) and the role model of collective skill formation

2.1 Rising diversity of VET and educational structures of selected countries

As a first step of our analysis, we embed the VET systems of the four countries compared into a broader view of international and global current structures and dynamics. In comparison to general or higher education, structures of vocational education and training are much more diverse. Several aspects create diverse configurations that pose challenges to comparison, because systematic information is often lacking about several of these aspects. Some main characteristics that constitute diversity in VET structures can be named as follows:

- The *positioning* of VET institutions in terms of opportunities they provide, and of status they constitute in society differs very much between countries; they might be positioned at comparatively low or high levels of opportunities or status, or they might be distributed at different levels within one national structure.
- The *provision* of VET competences might be organized school-based or work-based, or both school- and work-based that is called “dual”.
- The *participation* of the younger generation in VET institutions might range from very low to high proportions and might be distributed very differently across the age structure of young people ranging from teen-age at the end of compulsory school to young adults in parallel to higher education.
- The positioning at the *ISCED-levels* of the education structure in international classifications might be situated at upper secondary, or post-secondary, or tertiary level, or might also be distributed across different levels.
- Finally, the *transitional qualities and the transferability* of vocational programs in relation to general or higher education might differ widely, so VET can be highly separate from general or academic education programs or can be more tightly linked or transferable.

Taken together, certain empirical configurations of these characteristics can combine to very different kinds of institutions and institutional patterns that can range between simple and concentrated structures at lower level at one extreme and highly distributed and complex structures that provide diverse opportunities at the other extreme (see Pilz 2016 and Lassnigg & Vogtenhuber 2016 as empirical attempts to construct such multidimensional representations of comparative VET structures).

With the tendency of adding new and additional programs or tracks to vocational education the diversity of the structures is growing, and overall VET systems are increasingly difficult to grasp and classify and to separate from general and higher education. Policies of “dualization” are linking apprenticeship in companies to schools, and policies of strengthening the status of “dual VET” are creating transferability towards higher education and thus deliberately create stronger linkages to other education sectors. These trends and policies of blurring the boundaries of VET towards general and/or higher education institutions creates complexity at system level and poses challenges to governance and control, as different governance structures overlap.

Now some aspects of the configurations in the selected countries can be sketched in a comparative overview of simplified education structures (a stylized illustration of the positioning of the compared countries by the education structure of the adult population can be

found in Lassnigg et al. 2024, p.6-7). A crude mapping of the positioning of the four countries in European and international comparison is possible, based on information by the background data of the PIAAC- (Programme for the International Assessment of Adult Competencies) and of the CEDEFOP-(European Centre for the Development of Vocational Training)-database, with some caveats (Hungary was not included in the first round of PIAAC 2011, and the CEDFOP data do not include the detailed data for VET in Italy), so the information is not perfectly complete. Nevertheless, these data allow for a positioning of the four countries at the two dimensions of the educational structure of the stock of the (adult) population and of the more dynamic educational attainment of young people.

- The educational structure of the *stock of the adult population* can be compared by the distribution of tertiary, secondary, and low education completed, and more specifically by the proportion of VET at secondary level. Italy stands out by comparatively very low educational credentials (55% low educated), the German and Austrian populations own above average secondary and VET qualifications. The Austrian population stands out by the highest proportions of secondary and VET qualifications, but also by an average proportion of low educated and a low proportion of tertiary educated (the latter fairly like Italy). Germany differs from Austria by a markedly higher proportion of tertiary education (almost double) in the population, and a smaller proportion of low education. In this structure given by the PIAAC data Hungary can only be positioned by the information of the CEDEFOP data that show the proportion of low educated, and the proportion of the medium and highly educated that are employed at the corresponding level to their education. The low educated structure of Italy is reinforced by these data, and Hungary is positioned near to Germany, however, without comparative information about the proportion of VET credentials at secondary level.

- A striking result of this mapping is that the comparison of the educational structure of the stock of the adult population grossly shows only small similarities to the structure of *educational attainment in the young population* (that can be interpreted as flow figures in relation to the stock of the adult population). Particularly the proportion of VET education and qualifications from one dimension (stock) is unrelated to the other dimension (flow); this indicates overall a high degree of change in the (current) education structures compared to the stock of the respective population.

- Some *change of the education structures* in compared countries can be observed by the comparison of younger cohorts with the overall population. During recent decades, the proportion of low educated adults in the population (that is still highest in Italy) decreased at EU average by 10 per cent, reflected in three of the four countries (the exception is Germany). Among the age cohorts of young people, the educational participation of the 15-19-years group has been quite stable compared to the OECD average since 2005 (only Austria and Hungary show slight relative decreases). Among the older age groups between 20 and 29 years more dynamics occur in differing directions: Germany shows a relative increase of participation, whereas Italy and Hungary with participation below OECD average in 2005 show slightly differing tendencies. In Hungary participation in education decreases further until 2020, in Italy the participation has been constantly below average among the 20-24-age group, and this difference becomes smaller in the 25-29-age group; taken together, increases of educational participation are rather observed in older age groups of young people (above 20 or 25 years) in recent decades. The proportion of IVET at upper secondary level *increased strongly in Hungary since 2015* and remained quite stable at the EU average and in the three remaining countries; however, the proportion of *work-based education* increased at the EU average, but not in Austria, Germany and Hungary.

Turning more specifically to the structures of the education system that represent the potential inflow of credentials and competences into the population and labor force, some comparative information is provided by the *CEDEFOP database*: VET at upper secondary level, thereof combined school and work-based learning, apprenticeships, pay for work experience, and enterprises sponsoring training. Patterns and developments at these indicators are described in the following:

- The proportion of *VET at upper secondary level* is at EU average in three countries (around 50 per cent), only Austria shows a higher proportion at 70%; This proportion has been quite stable over time, only Hungary shows a strong increase from a previously very low level of 25 per cent to 50 per cent since 2018. However, the proportion of *combined school and work-based learning* programs within VET differs between the selected countries. Partly, these programs include apprenticeship type learning, and partly they also include work-based learning by practical experience through internships or school workshops – so this information does not fully reflect dual apprenticeship or collective skill formation systems.
- The proportion of the *apprenticeship systems* in Germany (80% of VET) and Austria (50% of VET) differs quite substantially, Italy counts at zero and in Hungary the figure of this type has risen from zero to hundred per cent between 2005 and 2015, indicating a kind of reclassification (at EU average this type lies only at around 20 per cent since 2015). So, within the whole of upper secondary attainment (general and VET) these combined VET programs count – except for Italy at zero – substantially above the EU average of 10 per cent (Germany 40%, Austria 30%, Hungary has risen from 20 per cent until 2017 to 50% in 2020).
- The weight of collective skills formation within VET can be crudely seen at the proportion of *enterprises sponsoring training*, that includes also adult training beside apprenticeship. This proportion lies above the EU average (71 per cent) in Austria (88 per cent) and Germany (77 per cent), and below average in Italy (60 per cent) and Hungary (44 per cent) – thus this measured engagement of enterprises in the provision of training does not directly correspond to engagement in initial VET. Two other indicators measure in different ways forms of work experience, paid or unpaid, during secondary education. On EU average 30 per cent of young people did not experience any work experience (2016, including forms of work-shop training at schools or institutions), and 40 per cent did not experience work experience in enterprises. The two dual apprenticeship systems in Germany and Austria have provided *paid work experience* for about 90 per cent of young people; on the other side, in Italy and Hungary 70 per cent of young people did not report work experience in enterprises, so up to 30 per cent might learn through *work experience in enterprises*. However, considering school or institution based (and unpaid) work experience around 50 per cent have access in Italy, and in Hungary the proportion of unpaid work experience is at about 50 per cent, thus only few young people report no work experience at all during their studies (5 per cent). Overall, the access to paid work experience in enterprises differs substantially between the selected “old” and “new” apprenticeship countries.

2.2 Collective skill formation and dual apprenticeship as a transnational role model

After Germany had to fight for decades during the 1960s till the 1980s to defend the reputation of its “Dual System” of apprenticeship against the overwhelming international trend towards the expansion of higher education and “Tertiarization” of education, this trend has reversed more recently. Dual apprenticeship models have increasingly gained quasi-mythological (cult)-status as a role model of VET at European (EU) and international levels (ILO), particularly as

a solution for problems on the youth labor market and for youth unemployment. Currently the German system is only topped by Switzerland that claims for a better solution for balancing dual VET and tertiarization (Kriesi et al. 2022).

In the research discourses about vocational education two topics prominently concern the context of our comparison. First, recent research reviews about VET policy have shown how the model of dual apprenticeship has been gradually established since the 2010s by various transnational players as a hegemonic policy proposal for the organization of vocational education and training (Martínez-Izquierdo et al., 2020; Martínez-Izquierdo & Torres-Sánchez, 2022a, 2022b; Toepper et al. 2021). Second, from the political economy of skill formation perspective that has been an important strand in vocational education research since decades (Clarke et al. 2021), a typology of skills formation has been established by Busemeyer & Trampusch (2012) that has put much emphasis on the understanding of dual apprenticeship and has become very influential, not to say hegemonic, as a concept in research and policy making (Mende et al. 2023). Busemeyer and Schlicht-Schmälzle (2014) make a distinction between four broad types of VET systems that are characterised mainly by the involvement of employers and of the state: state, collective, segmentalist (employer dominated), and residual (liberal), and they also give quantitative measures for a set of EU countries according to this typology. Dual apprenticeship is classified within the type of the collective skill formation system, and this has become the main label to characterize this model in terms of governance in the global research community (Kriesi et al. 2024). The engagement of state actors and private actors from the labor market (employers' representatives and unions), as well as schools and enterprises combine in this type of system. So, this type constitutes a mixture of actors, however, emphasis is very much laid on the private actors in the political economy. VET is focused on dual apprenticeship, and mixed VET systems, that in fact might span different types, and that might become increasingly important with rising diversity in VET, are not much considered in this approach. The analysis of governance problems in the selected countries below will show that overlaps between state systems and elements of collective systems might constitute remarkable challenges in governance. The analysis of educational governance should therefore not be confined to issues within the (hegemonic) types of skill formation, but rather should also consider issues at the edges between such types or sub-types.

3. Theory of governance/control in education still in flux beyond the hegemony of collective skill formation

3.1 Research reviews about challenges in governance

The concept of governance as a new understanding of government has been imported in several guises into the educational discourses and practices since the 1980s. Important aspects of this understanding were softer and less hierarchical forms of law and regulation, an extension of the involved actors and their forms of organization in addition to the established channels of public policy, an extension of the space and practices of policy making beyond the formal administration towards various networks across a multi-level structure of arrangements among various involved groups of interested actors ("new steering"), and finally new modes of policy making based on explicitly established goals and the measurement of outcomes ("New Public Management"). The new understanding of policy making has also included new tasks to be performed and problems to be solved in new kinds of agencies.

Spiel et al. (2017, 767-770), in their attempt to propose basic elements of a global educational policy towards social progress have provided a condensed review of governance that points to the importance of decision making in politics and of the institutional set-up for the functioning of the highly diverse structures and practices of educational governance. They emphasize, that “[a]nother important dimension in the governance of education is how different stakeholders are included in decision- making” (Spiel et al. 2017, 768). In the institutionalist view of governance, the once established structures and practices constitute strong path-dependency and feedback effects on further developments. Emmenegger et al. (2018) have gone deeper in the conceptual questions of governance in collective skill formation systems at the decentralized level.

However, these key elements identified, decision making and including stakeholders, importance of institutions, and path-dependency and recursiveness, are only part of the story. In the meantime, several attempts of literature reviews about educational governance can be found, that have substantially extended to perspective about this complex concept. These multi-disciplinary reviews of (VET) governance point to several dimensions (and literatures):

- Mende et al. (2023) in their systematic literature review of *VET system governance* have identified a set of different and overlapping schools of thought with the collective skill formation concept and dual system by Busemeyer & Trampusch (2011) receiving most attention, but other schools pointing to several additional dimensions of the concept of governance. They see enabling of “collective action among the various actors involved in VET” (Mende et al. 2023, 4) as central focus of governance and identify steering/control and coordination/cooperation with their instruments as main dimensions that are supported by additional more technical dimensions (supply-demand; finances and funding, quality and attractiveness). The variables identified in the literature that support steering/control and coordination/cooperation mostly carry demanding political challenges that go far beyond technical-instrumental specifications. The keywords involved in *steering/control* are vision, strategy and leadership; legal framework; democratic participation, accountability and transparency. *Cooperation/coordination* is constituted by aspects like vertical-horizontal coordination, cooperative environment, actor involvement, collective dilemmas, organizational support. Taken together, these dimensions and variables extracted from the review indicate the broad array of enabling ingredients necessary for collective action towards “high quality VET”. Moreover, these ingredients also give an impression of the demanding political nature of governance, or of successful governing. These variables are mostly very difficult to measure, and thus the challenges go far beyond organizational and technical-instrumental aspects.

- van Popering-Verkerk et al. (2022) have, based on a review of literature and elaborated by qualitative observations, developed a more general *framework of governance capacity* that goes beyond education to more general demands for steering societal sectors. They have extracted a set of procedural dimensions that constitute governance capacity. They find dimensions that have already been extracted in the VET review, solutions for collective action, coordination, and resources. Two dimensions are new (learning) or are given a somewhat different understanding (resilience) that includes a cooperative environment and recursiveness.

- Saguin (2019) has provided a brief literature review in a study about ingredients of *design of effective governance*, with a focus on public-private partnership and out-contracting educational tasks to private actors. He argues that governance has so far not being studied under the perspective of policy design. Two main aspects come out as being essential for effective governance. First, educational substance of tasks and governance procedures must not be separated, but both dimensions must be linked and considered for effective governance; the

strong attention to this linkage is new in this research in comparison to the previously mentioned literature. Second, overall public leadership is necessary and important.

- Finally, in an OECD-project, Burns & Koester (2016) have laid the focus on the needs and circumstances of *governing complexity* in education systems, whereby complexity is rising through decentralization policies, multi-level systems, and increasing variety of actors, and – related to all these factors – distributed knowledge. All factors that increase complexity undermine at the same time control and are to some extent self-reinforcing in this. So, the challenge for governing arises of how to operate control, and a main way of how to provide for this can be capacity building for all involved actors.

3.2 Governance in collective skill formation systems and research questions

Within the education structures the diversity of vocational education and training (VET) systems is particularly high and different attempts have constructed typologies of VET that prominently include aspects of governance. The typology from political economy based on the role of the state in relation to the role of firms has distinguished four broad types: Collective Skill Formation with a role for both creating high complexity on several dimensions and making control difficult, Liberal Market with a strong role for neither state nor (individual) firms, State Hierarchy with a strong role for the state, and Firm Segmentalism with a strong role of individual (large) firms. The diversity and complexity of educational structures is mirrored in various typologies based on varied sets of variables and methodologies, producing slightly different configurations (e.g., Verdier 2013, Pilz 2016, Tudor et al. 2023). Most typologies include the collective system type, with variants of dual apprenticeship and work-based learning as its core. Governance of this type includes state and private labour market actors (employers' and employees' organizations), and thus generates demand for coordination, including the management of conflicts of interest. This kind of VET system with Germany as a flagship is strongly supported by policy making already for some time, as several initiatives (by WEF, OECD, EU, etc.) and review and data-based studies show (Li & Pilz 2023, Salas-Velasco 2023).

The current chapter goes deeper into this type of VET governance. Much research is available about specificities, advantages, and policy transfer of systems of collective skills formation. In contrast we provide analyses of some main problems in the governance of collective skills formation as they were perceived by experts and research of the selected countries. This is a collective endeavor that brings together research specializing on governance problems in the four selected countries from the perspective of native researchers. Two of these countries (Germany, Austria) own historically established systems of collective skill formation, the remaining two (Italy, Hungary) have rather recently acted in different ways to establish and to build up such a system.

This collaborative chapter is originally based on the contributions to a panel at the European Conference on Educational Research (ECER) 2018,¹ at a time when dual apprenticeship was increasingly put on the political stage as a model for other countries in Europe and beyond, and when Italy and Hungary had taken policy measures to expand such a system shortly before. The original purpose, and in this sense the *first research question* (Q1) was to identify main

¹ The contributions were originally delivered as panel statements: Germany by Ludger Deitmer and Ursel Hauschildt, Hungary by Magdolna Benke, Italy by Marco Perini and Giuseppe Tacconi, Austria by Lorenz Lassnigg.

problems with governance in the selected countries and to put them on the table in a comparative space. The problems were identified by native researchers from reviews of exemplary research, evaluation, and policy studies in the four countries (Austria, Germany, Hungary, Italy). A framework of basic dimensions of VET research (Nägele & Gessler 2018, 5-7) was used as a guideline for the identification of problems. The contributors use different methodological approaches, some are more based on literature review, others on reflection of policy evaluations. At this point in time governance was a topic hardly considered in the VET research community (VETNET as part of the EERA-European Educational Research Association), and in their research framework the local/regional coordination of education and employment, and the empowerment of the local actors were very pragmatically mentioned as the main issues of governance. The panel at the 2018 ECER conference can be seen as a pioneering work in this context.²

The current update and reworking of the original contributions extend the analysis to some additional research questions:

- (Q2) How should the original problems be reinterpreted in a broader view of governance concepts and challenges, considering the comparative context?
- (Q3) Which main governance issues and challenges arise from the selected cases/examples for sustaining or building up dual apprenticeship and collective skill formation?
- (Q4) Can we find conceptual or perceptive gaps arising from the work with the VET typologies around collective skill formation?

The following section reports about the updated research work and organizes the cases pairwise and embedded in their respective context.

4. Research: Problems with governance in dual apprenticeship in four countries

The four selected countries have in common that they all have long established VET systems and institutions, and all run for some time policies of sustaining or developing institutions under the name of dual system, and all also have to some extent institutions of apprenticeship contracts. So, they are for sure comparable concerning their experience with governance of dual apprenticeship. In the wider context the four countries have also some common histories partly with periods of domination and sometimes heavy conflicts even culminating in wars. Since some (differing) times all are member states of the European Union. The political structures of the states are federalist (except in Hungary), with quite different specifications and positionings of the regional units in different countries, and different consequences of federalism for education and VET; the balancing of a central (or regional) educational bureaucracy against regional or local autonomy in education also shows different (and partly changing) patterns in the selected countries. Different types of welfare states have emerged, continental in Germany and Austria, mediterranean in Italy, and post-socialist in Hungary, thus

² In the VETNET proceedings this contribution was the only one that carries governance in the title, and a search of the term “governance” gives more than 50 per cent of all mentions in the proceedings for this contribution (36 out of 67); beside this, only other three out of total 43 contributions make very sparse and punctual mentions of governance in the proceedings, several mentions of “governance” are part of authors descriptions or punctual references to literature. So, overall, the separation of content and procedures criticized by Saguin (2019) can be found in the proceedings.

the institutional frameworks in politics and society and the configurations of political actors (parties, interest groups) are different.

The stage of establishment of dual systems is pairwise very different in the four countries. In Germany and Austria, the current shape was established in the late 1960s with new legal frameworks after a long history of apprenticeship anchored in trade orders, in parallel the full-time vocational schools have different histories. In Italy and Hungary steps toward the dual system were taken in quite different modalities, with attempts to somehow combine existing vocational schools with enterprises, and to establish workshops and internships as the main modes. The analyses of governance problems and challenges are presented pairwise in the following sections.

An important aspect of the analyses is that the concepts of dual apprenticeship or dual system – that in policy making work as common signals suggesting a certain meaning – in fact represent not a uniform structure but carry various quite different meanings. Two important distinctions have been established in research (Cefalo & Kazepov 2024; Rustico et al. 2020): First, between *apprenticeship* and *dual apprenticeship*, with the former meaning mainly an employment relation in the economic sphere including some training component, and the latter meaning an educational relationship that combines enterprise practice institutions with school institutions. The second distinction, related to the first, is between “*apprenticeship as a system (Type A)*” and “*apprenticeship as a scheme (Type B)*”, whereby both are to some extent dual by combining school and enterprise, however, the former is a fully fledged education and training system, and the latter is a mode of delivery within a broader more complex VET system. CEDEFOP (2018) in its stocktaking of apprenticeship has distinguished an additional third hybrid type of apprenticeship provision (Type C), and with a distinction of three subtypes in Type B has reached a typology with five categories of apprenticeship provision. Overall, the study finds only few countries that did not provide a mainstream apprenticeship scheme (6 countries, almost all post-socialist), and in sum thirty schemes were provided in remaining countries (with more than one scheme in Belgium, France, Italy, and UK). Germany and Austria are classified as fully fledged apprenticeship systems (type A) in common with Denmark, Croatia, Ireland, Iceland, Norway, and Poland. Italy and Hungary are classified in the same Category of type B “Full and partial apprenticeship individual pathways” in common with Belgium (French community), Spain, Finland, and Sweden. Governance is described as a mixed topic between school and employment authorities at different levels, and as a necessary ingredient for functioning apprenticeship schemes, challenges are not much emphasized in the report.

The CEDEFOP classification reflects the situation at the time when the original analyses were made, since then further research has been provided particularly about Italy, and partly in comparison to Austria that clarifies more deeply how the system works (Cefalo & Kazepov 2024; Rustico et al. 2020).

4.1 Established dual apprenticeship systems (Germany, Austria)

Apprenticeship systems in Germany and Austria are mostly perceived as very similar, or more or less the same, e.g., Durazzi & Geyer (2020) find different transition policies and actors, however, see no differences in the apprenticeship systems. However, the rough indicators in the description of context factors have shown substantial differences in the education structures of the population as well as of the youth cohort. Looking into these crude quantitative differences, they reflect substantial differences: First, the apprenticeship systems are positioned

differently in the VET system. In Austria apprentices make only half of upper secondary VET and are competing with parallel upper level fulltime state VET schools that qualify at a higher level, whereas in Germany apprentices learn much more often at a higher (post-secondary) age after having earned the Abitur-exam that qualifies for higher education and they learn in large enterprises with extensive training infrastructure and thus often are more highly qualified. A second difference is that Germany has established a vocational track of higher education (Fachhochschule) already in the 1960s, three decades before Austria has set a much smaller and less expansive Fachhochschule system, this difference being reflected in the different educational structure of the population. So, in sum, the overall qualifying structure is different in these two countries despite similar apprenticeship systems, of however, different size and different qualities.

These differences in qualifying structures also find expression in the governance structures and practices. Germany, with dual apprenticeship as the main provider of VET qualifications works clearly as a collective skill formation system that is governed in a combination of state and social partner institutions. All actors are to some degree coordinated at the national level, despite the federal system, however, decentral actors also play their role (regional authorities, employer organizations, and in particular, large enterprises). Large enterprises that invest in apprenticeship strive for control over their investment, so a tendency towards a segmentalist system, and some competition with the collective system easily can emerge; at the same time the state actors might try to keep or strengthen their moderating role to defend the collective system. In the Austrian structure, the collective skill formation system makes only a part of VET and competes with the state system that is responsible for full-time VET schools. So, Austria in fact is not a collective skill formation system alone but a mixed “dualistic” state and collective system, a conclusion that has not been taken in the Busemeyer & Trampusch (2012) analysis, despite the ingredients have already been observed. This means that an additional task of governance arises in coordinating the two systems. In both countries the federalist structures might play a buffering and/or integrating role on the side of the state; in this respect, small Austria has a federalist structure despite it is similar in size as a medium size German state and the main legitimation for federalism has always been a large size of a country. The specific analyses will look further into these issues.

4.1.1 Governance problems in German dual apprenticeship in perspective of comparative studies

Germany is generally perceived as the paradigmatic collective skill formation system with dual apprenticeship as its core; nevertheless, we find contributions that problematize the sustainability of this system. Authors in Busemeyer & Trampusch (2012) have found a tendency towards “segmentalism”, with the big companies trying to get more authoritative control vis-à-vis the public state institutions. However, not much research about more concrete multi-level governance problems is available. In this contribution difficulties of the implementation of more integrative governance practices are studied, with the question of how to improve the quality of dual VET in Germany in the center.

Results of three studies are discussed that give input to formulate improvement strategies, by reflecting some key dimensions of governance in VET: the allocation of operative and strategic functions; the balancing of output and input orientation; the creation of consistent legal frameworks; and the involvement of the various bodies and actors as well as adequate resourcing.

First, the Bertelsmann study (Rauner & Wittig, 2013) studied and compared the governance of dual training systems of Denmark, Switzerland and Austria in contrast to Germany, based on four evaluation workshops involving different country experts. According to the views of these experts, strong governance follows a concentration of strategic functions on national level, and the provision of more operative flexibility for VET actors at the local level.

The study concludes that Germany follows in comparison a less integrative governance strategy, while there is an in-balance of central and local functions. These problems are notified in several elements of the system's governance, such as: the re-configuration of curricula, and dysfunctions within the vocational examination process. As regards the allocation of strategic and operative functions, the results suggest that a higher autonomy of the local bodies (companies and schools, and intermediate institutions like Chambers) concerning the implementation of vocational training represents a specific advantage of the Danish, Austrian and Swiss systems but not for German VET (Rauner & Wittig, 2013).

Second, a recently finalized CEDEFOP Study (Hauschild & Wittig, 2015) applied a specific expert driven evaluation approach and developed the methods of the previous study a step further. The result of these workshops is a 'Governance Equalizer' that shows first an ideal configuration of governance functions based on 6 main criteria that were broken down to 22 sub criteria:

- Consistent legal framework
- Balanced allocation of strategic and operational functions
- Involvement/integration of the various bodies
- Quality assurance and development/ innovation strategies
- Balanced outcome and input orientation

On the base of these criteria country VET experts developed configurations of the actual status of VET systems in the countries Italy, Spain, Sweden, Latvia, and Portugal during five evaluation workshops. The configurations found by the experts for individual countries are far away from the pre-defined optimum, and are indicating priorities for strategic attempts. For Italy, Hauschildt et al. (2015, p. 51) have shown that a more consistent structure of the legal frameworks is needed, and the allocation of the strategic functions should allow a better balance between regional and central functions and support; quality development and assurance need a more dynamic approach, and more shared financing of public and private financial resources is necessary. The results of this study support an action-oriented evaluation approach which could integrate more actors into governance (Deitmer 2015).

Third, Frey (2018) analysed the governance of an important part of VET: the final examinations. He interviewed examination teams of the German North West region in several group discussions. Examiners came from VET training in mechanical engineering companies, and from the local VET schools (VET teacher with professional background in mechatronics). In 90% of the cases the examiners themselves had completed an apprenticeship in their domain, in most cases followed by higher vocational (e.g. Technician or Meister programmes) or academic education (e.g. Engineering).

In their examination, the apprentices had to select an innovative and challenging company work order, which they must develop for assessment. Examiners' acceptance and rating of the delivered tasks follows certain assessment criteria: the difficulty level addressing innovative mechatronic workers' skills, but also manageability in terms of time, material, production etc.

The interviewees expressed that the need for a better balance between central and local responsibilities is urgent. The central regulations are not fitting well to the practices, while clarity is also missing in some parts. Other parts of the regulation are too much binding the local users, e.g., regulatory regulations that are too narrow. Examiners, moreover, judge criteria as not being applicable. For example, the given time frame of 20 hours for delivery was found being too narrow; empirically the frame is exceeded by at least 100%. Other critical points concern the assessment sheets, and missing time for the transparent documentation.

The pre-formulated hypothesis of a balance between central and local functions was agreed. The examiners asked for more freedom to expand – if needed – time and frequency of local inspection visits, such as meetings with trainers and the apprentices within the training company (Deitmer et al., 2015).

Concluding these selected results about problems in the governance of the German collective skill formation system, a sustainable and integrative governance strategy would mean that the different responsible actors (e.g., trainers, teachers, apprentices) can coordinate their teaching and learning to allow for a better cooperation of the included learning venues e.g., companies, VET schools, training centers, chambers (Deitmer, 2015; Gessler, 2017).

Based on the evaluated data in several surveys and studies, it can be seen that the perceived learning location cooperation of the trainees has a medium-strong influence on the perception of the company as well as the school training quality. Several apprentice surveys under trainees and apprentices show, that a clear majority of the apprentices value the local cooperation under training companies and VET school as ineffective or even not taking place (Werner 2022, Heinemann et.al. 2009, Piening et. al. 2012). The findings from these 3 regional studies can possibly motivate vocational trainers and teachers to recognize the added value of learning location cooperation and to promote it more strongly. This requires a new division of the tasks towards the coordination management of vocational education venues: concentration of the strategic function on the national level and that of operative management tasks more at local or regional level.

4.1.2 Bridging multilevel problems by the Austrian lifelong learning strategy?

The Austrian education system is exceptional in comparison by its contrariness and complexity. In several aspects Austria was a forerunner (regulation of compulsory school for the masses in late 18th century, establishment of industrial engineering schools in late 19th century, intellectual and scientific innovation around 1900 in and out of university system, early regional social-democratic regime and establishment of welfare state in 1920s, early comprehensive reform in 1920s, early neo-corporatist social partnership in 1950s), however, all these early achievements of innovation and modernization were completely broken down during the antiliberal and authoritarian period of the 1930s followed by Austrian and German fascist regimes that turned education into a conservative and reactionary direction resulting in an early tracked and selective structure that has avoided or postponed the main educational reform waves of the 20th century (comprehensive school, vocational binary higher education, tertiarization), and kept a complex throughout hierarchical education structure with unequal status differentiation among teachers and schools and high degrees of social and cultural reproduction. This overall contrariness and complexity of the overall system is mirrored in the complex governance structure and in the adversarial political culture between modernizers and traditionalists of different camps that hold the system in ambivalence and stagnation.

Austria is conventionally classified together with Germany and Switzerland as a paradigmatic collective skill formation system. Indeed, a longstanding dual apprenticeship as the core of a collective skill formation system is in place, with all the internal governance problems of coordination among the various actors. However, this is only part of the story, as the apprenticeship system is complemented by a strong state VET school system that has successfully emerged to the most successful part of VET during recent decades (Lassnigg, 2011). Thus, in Austria the governance of VET is strongly fragmented to different *educational sectors* (full-time schools and apprenticeship, labor market policy, and higher education institutions), different *actors* (state bureaucracies, social partners, enterprises, the public employment service) and different *levels of government* (local, regional, central) – in sum three separate, more or less closed governance systems exist in parallel, the regionally layered state bureaucracy for schools including VET schools, the social partners for apprenticeship, and in higher education the state driven New Public Management system of autonomous universities paralleled by newer non-university institutions of applied science and teacher education. The Busemeyer & Thelen (2012) volume did not consider mixed systems in their analysis and classified Austria as a clear collective skill formation system. However, the modular approach of Cefalo & Kazepov (2024, 12) classifies Austria as a mixed hybrid case from the state and the collective skill formation types.

Compared to our selected cases, the Austrian system comprises in fact a mixture of the German collective skill formation system with the still predominantly state systems in Hungary and Italy, with their strong differentiation of VET towards parallel hierarchical tracks at lower, medium and higher levels. In comparison to Germany the proportion of secondary (VET) qualifications in the population is much higher and that of tertiary qualifications is much lower; compared to Hungary and Italy the proportion of VET students at upper secondary level is much higher in Austria with a different approach of forms of work-based learning. Whereas in Hungary and Italy only a minority of VET students experience fully paid work, and the majority participate in unpaid work experience mainly in school or institutional settings, the VET students and apprentices in Austria experience predominantly fully paid work in enterprises, whereby the work experience in full-time VET schools and apprenticeship differs completely in time and status (full-time VET schools provide workshops or simulated firms and require amounts of employed work during holidays, whereas apprenticeship is a clearly specified employment relation).

Overall, the whole of education is governed in parallel by separate systems without being bridged by an overall coordination system. Nevertheless, such an overall coordination would be necessary for the provision of lifelong learning. In periods of demographic decline and skills shortages this need becomes particularly pressing when the different education sectors are competing for applicants. Thus, at the level of upper secondary VET the particular problem arises of how the collective skill formation system in apprenticeship can be coordinated with the state system in VET schools. In practice it is hardly possible to find agreements among the actors about clear priorities of how to improve the matching of supply and demand – each of the sectors tends to choose its own priorities, and sometimes paradoxically each sector is right because needs arise at all levels.

In order to find ways for broader coordination and influenced from European policy proposals a government based lifelong-learning-strategy (Republik Österreich, 2011) was set up during the 2000s to coordinate lifelong learning across the different policy silos: four ministers have taken responsibility for this strategy: education, science, labor, and economic affairs. The strategy was built up in a consultation process over more than a decade, resulting in a framework that included (i) some guiding instruments (principles, guidelines, goals and benchmarks), (ii) a content structure that proposed ten lines of action ('Aktionslinien')

according to certain education sectors combined with priorities (e.g., improvement of equality of opportunity in compulsory education; or support of adult education (AE) in the areas of employment related non-formal AE, enterprise based learning conditions, community education; or support of mobility to name a few), and (iii) the main element was a social and political implementation platform that should bring together the interested stakeholders to develop feasible policy measures; (iv) a regular monitoring process should support the efficacy of the strategy.

This strategy can be analysed as an exemplary attempt of how the various New Public Management (NPM) tools (definition of goals and indicators, involvement of actors in temporary working groups and projects, open fund raising, etc.) might work in such an open and flexible governance structure, and it can also be analyzed as an approach of experimenting policy learning.

The experience with this well-meant complex and comprehensive strategy shows a terrific disaster. It has only collected fragmented and punctual policy measures that were already under way, and the stakeholders in several action lines have not found ways of action, or initial attempts of them in some action lines have faded away over time. In 2017 the last of the four initial ministers went out of office, and the implementation platform did not meet any more. The 2010-2020 strategy simply passed away informally before its closing date without any official closing or eulogy. What can we learn from this attempt about governance (Lassnigg, 2014, 2017, 2020)?

- First, a NPM strategy without legal basis can fade away without much ado despite many involved stakeholders,

- second, a (public) strategy without a budget is not feasible, even if it is based on good ideas and an experimenting approach,

- third, if public policy makers are involved by taking key positions, they will try to control a broader collective process and try to push their agenda through,

- finally, a professional approach, even if it is started quite carefully with consultation and structuring of work, is too weak vis-à-vis the short-term interests of politics.

Overall, we can find some similarities in conception between the Austrian strategy and the central Italian reform instrument for the dual system given by the state-regions agreement mentioned above. The Austrian strategy was prepared through an extensive and inclusive process lasting almost over a decade, including several political and professional expert statements and a public consultation summarized by a systematic evaluation; an expert panel provided a proposal under consideration of all the submitted material that was substantially revised and finalized in a closed informal and in-transparent political and administrative negotiation process, without seeking feedback by the previously involved experts and contributors.

Proposals about the governance of the strategy were made during the process before the final negotiations, charging first a legal foundation, and second the establishment of a legally based professional steering council with some separation from the day-by-day political process. These proposals made early by the social partners and reinforced again in the final expert strategy paper were completely discarded in the final political negotiations that have set up a pure political process that has even subordinated the external monitoring of the strategy under the control of politics. However, this gain of control by politics was hidden behind the successful attempt to make the strategy look like a civil society process that has brought together a broad bulk of selected stakeholders in the implementation platform. In hindsight, the

importance of these governance issues of the strategy was underestimated by the contributing actors and experts. Governance did not play a role in the consultation process, and the experts and social partners – including one of the current authors – did not fight enough for a transparent and inclusive legally based governance of the strategy. So, in effect politicians could use the strategy for their purposes by capitalizing on the complexity of the strategy and the various divergences and conflicts of interest among the wide variety of involved stakeholders. Apprenticeship was included in the strategy via the action line of guaranteeing smooth youth transition by including the already ongoing support through labor market policy and the public employment service. Because this support was a well-established policy since decades these activities, by including them in formally in the strategy, could be used as a main legitimating of the political success advertisement of the Austrian lifelong learning strategy without a need to change anything. In the overall complex and fragmented strategy other formal objectives, as the improvement of competences among young people in literacy, that would have affected the apprenticeship system and its governance because of the comparatively low literacy competences of apprentices, did not find attention because of the conflicting interests of included stakeholders. The formal goal of improving literacy competences of young people could continuously be proclaimed without being tackled by activities.

4.2 Countries newly building up dual systems (Hungary, Italy)

In this pair also a large and a small country are analyzed that share some characteristics and are divided by several other. In both countries the structure of the state in the centralism-decentralism dimension is politically contested, with a strong decentral component in large Italy (20 regions, 90 provinces with legislative competences) and a stronger central component in small Hungary. The decentral political structure in Italy is paralleled by very strong regional economic disparities between Northern and Southern Italy that is even cited as a “regionalized capitalism based on local networks” (Cefalo & Kazepov 2024, 13). A further difference is the context of a mediterranean welfare model (Italy) versus a post-socialist one (Hungary), that is reflected in different educational structures of the population showing a high proportion of formally low educated people in the former and a by-and-large European average education structure in the latter. In the young population both countries show a proportion of VET that is near that of Germany, with a strong (formal) increase in Hungary. The VET systems in both countries are complex and strongly differentiated with different kinds of attempts to strengthen the work-based element vis-a-vis the school-based component; in Hungary the component of general and pre-vocational education in VET institutions has been comparatively strong in the past and was reduced in reforms (CEDEFOP referent 2014a); in Italy the regional disparities in education and training systems are very marked (Cefalo & Kazepov 2024).

These two countries have long standing state VET school systems with a strong regional responsibility in Italy and originally a high degree of regional/local autonomy of schools in Hungary. Italy has some tradition since the 1950s with apprenticeship contracts in the system of social partnership with focus on the employment relation and unspecified training, and Hungary has established apprenticeship contracts in the way of VET reforms towards a “dual system” since the late 1990s. From the early 2000s both countries have in parallel run policies to establish forms of “dual systems” within the existing school-based VET systems and institutions and to engage enterprises in this endeavor. These policies were embedded in stepwise large scale VET reforms in recent decades, before and after the global economic and financial crisis 2008 (main reform steps were taken in 1998 and 2011 in Hungary, and in 2003 and 2015 in Italy).

Despite the nearly parallel timing of the policies, the starting conditions and the shape were quite different. Italy tried to infuse firm-based apprenticeship into the existing complex mainly schools-based VET system in addition to an existing employment-based apprenticeship scheme that had taken little care of the educational functions so far. Hungary has laid the focus on the strengthening of practical elements and work-based experience particularly in lower-level VET schools, by establishing different ways of providing access to practice, as workshops in schools, workshops in enterprises, cooperation contracts of schools with enterprises providing internships, and individual apprenticeship contracts providing remuneration. Establishing cooperation between educational and economic actors was a main challenge in both countries and has found quite different approaches of policies.

4.2.1 Centralization and dualization of Hungarian VET, concerns and worries

With respect to the comparative data, Hungary has experienced much more changes during recent decades than the other three selected countries. This section analyses the governance measures that parallel these changes. The level of democratization in the society, the autonomy and responsiveness of different groups, the dialogue and partnership between the key actors, the role of the social partners, the power of the civil sector, all determine the governance of the education and training system of a given country and the degree of centralization in the system (Billett & Seddon, 2004; Rainbird, 2010; Benke, 2015a; Loogma, 2016).

In Hungary, during the decades between the regime change and 2011, decentralization and centralization processes took turns in the field of VET governance. Under the government that came to power in 2011 and has been in power since then, a continuous centralization of vocational education and training has happened. In 2011, the new ‘conservative’ majority government passed an Act on National Public Education (replacing the law on Public Education) (Velkey, 2013), and a new law on VET. In January 2013, all schools previously maintained by local or county governments were taken over by the state. According to some experts, the new laws were followed by ‘all-pervasive centralization, a shift to administrative bureaucratic and political control, and the termination of the organizational, fiscal and professional autonomy of schools’ (Radó 2021:77).

The role of the Hungarian Chamber of Commerce and Industry (HCCI) in vocational education and training (VET) has been growing until the recent law introduced in 2019, becoming a key player in VET policy making and fulfilling important tasks under its 2010 agreement with the government. The MKIK had been responsible for developing standards, framework curricula and examination procedures for the majority of qualifications required for blue-collar jobs, participating in the organisation of IVET examinations, and performing quality assurance functions, in cooperation with entrepreneur associations and advocacy organisations. Beside the state centralization, the relevant actors in governance were extended by MKIK which was in a privileged position with regard to Hungarian VET, and its informal and then formally strengthened position lasted until recently.

The state is now responsible for providing education, hiring teaching staff (including the head teachers) and paying their salaries. From September 2015, the maintenance of public VET schools had been taken over by the Ministry of National Economy. The aims of the Government were to make the maintenance and professional management of VET schools more efficient; to make VET even more responsive to the needs of the economy; and to further strengthen and increase dual VET. The number of VET schools (at that time around 7-800) was also to be radically reduced, based on a one-by-one review of their training profiles

(Cedefop Refernet, 2014a). The Government also expressed its commitment to raise the share and prestige of VET by making manual skilled worker training programmes less theoretical, with more training conducted at enterprises.

A VET structure that included both a long VET foundation and short specialized training was developed in the 1990s and this system was in force until 2013, with minor changes. Since then, the principle of connecting and coordinating VET outcomes and occupations and jobs, which was typical until the 1990s, has been brought to life again. The most important differences of these 2011-15 reforms in comparison with the former system are the following: the originally 4 to 5 year-long vocational school programmes were replaced by a uniform 3-year programme, the so called ‘dual VET model’. The dual system has a tradition in Hungary, as between 1970 and 1990 a quasi-dual system based on cooperation between companies and schools operated in the country. Around 1990, after the change of regime, when some sectors almost disappeared in a very short period of time, thousands of apprentices lost their company internships and vocational schools tried to replace them with school workshops, sometimes at tremendous cost. Consequently, strengthening links with companies has consistently been a key objective for those responsible for vocational training.

In these changes the government also intended to increase the participation of enterprises in the VET system. The proportion of practical training in the new programmes is significantly higher than before, while the proportions of vocational theoretical education and particularly general education were reduced.

Still, after the reforms of the early 2010s there have been continuous changes in VET policy in Hungary during the last decade. As measures following one another relatively quickly did not achieve desired results, the government has continuously introduced further new actions. The organisation of the fragmented vocational school system into centres, the establishment of TISZKs (Regional Integrated Vocational Training Centres), then the termination of TISZKs, later the establishment of Vocational Training Centres (SzC), the forced centralisation, and the concentration of power, all these changes have clearly not produced the desired results. The most important consequence of the structural changes is that the previously flexible, horizontally relatively freely interoperable system has become rigid and impenetrable (Mártonfi 2019).

Because of their rapid introduction some experts fear that government decisions have not been thoroughly prepared. It is not clear what role scientific and expert background has played in shaping the latest government decisions (Benke & Rachwał, 2022). Based on the Szakképzés 4.0 (VET 4.0) strategy adopted by the Hungarian government in 2019, the institutional structure of VET has again changed from the 2020/2021 school year. The institutional structure operating formerly, ‘vocational gymnasium’ and ‘vocational secondary school’, has been replaced in an ascending system by ‘technicums’ and ‘vocational schools’. In technicums training lasts five years, and after the first two focusing on sector specific knowledge, practical vocational training takes place in the second cycle. In vocational schools training lasts for three years. In the first year, training provides sector specific knowledge, followed by practical vocational training in the next two years.

New players in the system are the Sector Skills Councils (SACs) established in 2018. According to the official definition the Hungarian Sector Skills Councils aim to prevent and overcome skills gaps, skills shortages and skills mismatches, and create strong links between the business work and education, further aligning vocational training programmes with employer’s needs. The Vocational Innovation Council (SZIT) was aimed to provide a forum for meaningful dialogue between the government and the key players in VET. Not enough data is yet available on their operation. In parallel to the inclusion of new actors into governance,

the ministries responsible for vocational education and training are in frequent rotation in Hungary. After the NGM (Ministry of National Economy in Hungary) was in position, vocational education and training was under the governance of the Ministry of Technology and Innovation for a few years. Since 2022, currently the Ministry of Culture and Innovation has been responsible for VET. Despite the strong formal centralisation of schools, the institutional allocation within the state has remained unstable, and in addition, according to a recent research paper, in this centralized management system, a connected institutional, local and regional mid-term strategic planning system is completely missing (Radó 2021).

The second big line of change, the dualization in Hungarian VET, brings additional challenges for governance. One of the main objectives of the VET policy of the government has been to encourage the participation of the enterprises in training provision, i.e., to increase the share of practical training provided at the workplace vis-à-vis school workshops. Since 2011 financial incentives for enterprises related to practical training are a main policy strand. From 1985 until the end of 2021 Hungary has run a “levy system”: Companies that did not train apprentices had to pay into the vocational training fund to ensure a more equal financial burden (however, apprenticeships could be replaced by in-house staff training). In this system companies could reimburse for the majority of their training costs from the training sub-fund of the National Employment Fund. However, the 'Levy system' closed down at the end of 2021.

The new approach that emerged in recent years, the increasing ‘dualization’ of VET aims to retain young people in education and training and ensure the supply of skilled workers by starting VET earlier – just as before 1998 – at the age of 14 (year 9) in their first VET grade. The aim of VET policy has been to carry out internships with as many students as possible, especially in the ‘lower branch’ of VET (Benke & Rachwał, 2022). In the case of ISCED 3 level professions, which typically train for blue-collar jobs, the larger share of practical training has moved to enterprises. At the same time, the involvement of enterprises in post-secondary VET is still insignificant; economic actors do not yet show an interest in increasing dual training at this level, therefore it is still mostly provided in school-based training.

The majority of students in manual skilled worker training programmes participate in enterprise-based training, usually based on a training contract. The apprenticeship (training) contract was also an important element of the system, mentioned in the Vocational Training Act of 1993. In 2003 about 14.000 training contracts are reported; Cedefop Refernet 2014a, 37). The absolute number of training contracts in the late 2010s was in the order of magnitude of 60.000-70.000, as compared to about 420.000 students at upper secondary level; Cedefop Refernet 2014a. The availability of apprenticeship training contracts varies by sector/occupational field/occupation. In May 2014, practical training based on a training contract took place in more than 200 professions; however, with an uneven distribution: 58% of apprenticeship training offered at ISCED 353 level qualifications covered only 10 occupations.

The new law (2019) replaces the apprenticeship contract with a vocational training work contract. After the basic sectoral examination, the scholarship will be replaced by the salary available under the vocational training work contract, which is much higher than the scholarship. The government's aim is to get as many people as possible to do work experience in companies under the new vocational training work contract. The new work contracts, which provide much more money than the previous measures, may increase young people's interest in VET in the near future. However, the dual partner, the dual training centre can decide with whom it will enter into a contract and can carry out a selection procedure.

There are different opinions about the dualization process in VET. According to the official opinion the idea itself that the dual system should be strengthened and expanded enjoys broad

support (Cedefop Refernet, 2014b). At the same time, trade unions in the education sector and some VET experts have expressed serious concerns about the above reforms. They are afraid that a forceful strategy of overly practice oriented VET will in fact lead to a weaker, downgraded VET, which does not prepare students for lifelong learning. The growing emphasis on practical, work-related training, and the stronger ties to labour market needs, all express the intention to train better skilled workers in the new types of VET schools rather than preparing them for further education. According to the trade unions, there is no doubt that a sharp increase in vocational school enrolment (and, in parallel, a sharp decrease in grammar school enrolment) could better serve the acute, short-term needs of the economy. The longer-term knowledge-based future of the economy and society might then, however, be at risk because of the decrease of general education (Kunert, 2016). According to research results, a Hungarian student participating in vocational education spends about two or three years less with general education subjects, than his or her German counterparts' (Fazekas et al 2020: 64-65); this situation was recognized by the MKIK, too, in an official publication.

While the purpose and definition of secondary VET is rather expanding in Europe (Cedefop 2020, HERJ 2022), economic goals are dominating VET to this day in Hungary. The implementation of tasks arising from ad hoc market requirements seems to appear as a given priority in developing Hungarian VET (Benke & Rachwał, 2022).

There is a risk that nowadays dual training better serves the coordination of economic needs and training only in the case of large companies who mainly try to ensure their own labour supply and train pupils for themselves. In other internships, companies may only undertake this service because of the immediate economic rewards ("creaming" of better students, reaping tax reductions, and paying lower apprenticeship wages for better qualified work) rather than to serve wider training and qualification demands. Some researchers worry that companies are only interested in retaining students who make (higher) profits (Mártonfi 2019).

There is growing dissatisfaction in the society towards the Hungarian vocational education and training system. Teachers and students worry about the immoderate centralisation of the education system (European Trade Union Committee for Education, 2016). Politicians (of the opposition) and education experts are increasingly concerned about the excessive centralization of VET and the inadequately prudent dualization process. The downsizing of the role of VET professionals and professional publicity, as well as limiting the room for manoeuvre in VET policy by major policies, will do little to make a substantial shift towards a more effective VET system in the near future (Györgyi 2019). The most recent strategy (based on a new VET Act 2019) aims to attract more students to VET schools but makes it more difficult for them to switch to a general education path to gain additional knowledge and competences.

Additional independent research attempts based on research methods of literature review, secondary processing of research results, and expert interviews point to the circumstances the government has not considered while forcing dualization. This research demonstrates the negative effects of excessive centralization and hasty dualization. However, some of the lessons from the Hungarian "Learning Regions and Learning Communities" research and the "Community Learning and Social Innovation" research projects hopefully provide a good example of how decentralised bottom-up local innovation efforts, agro-product development and service projects, with the creation of learning communities, can be a good starting point for strengthening the role of grassroots development and local governance, which may well contribute to effective local vocational education and training governance (Benke, 2015b, 2021). However, it is questionable if the current situation around VET governance is appropriate for starting strong grassroots initiatives and building real partnership between the key actors of local VET.

4.2.2 The Italian VET system: reluctant reforms and complex governance³

According to PIAAC and CEDEFOP data the qualification structure of the population in Italy shows much more low educated people than other countries, and the rate of Italian youth unemployment has stayed above 30 per cent during the 2010s (Istat, 2018). Among young people more than average attained upper secondary VET with a slightly decreasing tendency, as shown by CEDEFOP data. According to these data much more young people than average or selected countries do not acquire work experience; lack of work experience in enterprises is also high (similar to Hungary). However, forms of work-based learning might also be underestimated in comparative statistics because of lack of data and difficulties to acquire data as demonstrated by specific reports by the Istituto Nazionale per l'Analisi delle Politiche Pubbliche (INAPP 2017a,b) about surveys at the level of regions. No national statistical information about work-based learning seems to be reported to the CEDEFOP database, thus Italy appears with zero figures at this dimension, despite several policies have tried to establish and increase forms of work-based learning since the 2000s. This might be due to the complex differentiation of the VET system to the state (national) level and the regional/provincial level, with the state schools (*istituti tecnici*, *istituti professionali*) providing much general and prevocational components at advanced levels, and the main VET schools preparing for employment at the regional/provincial level (*istruzione e formazione professionale*, *leFP*). In addition to these VET schools, different types of apprenticeship schemes gradually were established, that should link the world of schools more closely to the world of work.

First a traditional type called “occupational apprenticeship” was quite well established in some regions since the 1950s; however, this type, mainly organized and governed by the social partners was focused mainly on the employment relationship. It was unrelated to VET schools and did not emphasize the educational function. “Apprenticeships are often used as temporary employment at lower labor costs and are still depreciated from a cultural standpoint, as apprentices are perceived as low-skilled workers who learn the job by observing more experienced colleagues in their working activity” (Cefalo & Kazepov 2020, 15). This occupational type is still the by far dominating form of apprenticeship (95% of about 70.000 existing contracts) and is concentrated much to certain regions (about 70% in only six out of 20 regions). Second, in 2003 two additional types of apprenticeship were legally established at different levels of VET schools, “the so-called type 1 apprenticeship at upper secondary and postsecondary level and type 3 apprenticeship at tertiary level. [...] In the period 2003-2015, type 1 apprenticeship was linked to regional vocational education and training qualifications, under the remit of the regions and autonomous provinces (regional vocational education and training) and the social partners.” (Rustico et al. 2020, 92-97)

However, the new types of apprenticeships were not taken up by schools and enterprises. “Although existing since 2003, type 1 apprenticeship still covers only a marginal share of the overall number of apprenticeship contracts in Italy.” (Rustico et al. 2020, 101). In 2015 the Italian government reformed the apprenticeship regulations by extending these schemes to the advanced level state VET schools to counter youth unemployment and early school leaving. (State-Regions agreement of 24 September 2015). This reform was termed as introducing a kind of dual system. Like Hungary, the meaning of the dual system in Italy is much wider than in the traditional meaning of the German (or Austrian) dual apprenticeship system that is synonymous with collective skill formation. The Italian dual system has been established

³ A previous version of this section was contributed by Marco Perini, University of Verona.

predominantly within VET schools, by three versions of contact with practical work, first as work-based learning by hours of “alternation” between school and work environments, second by simulated training company methodology within the paths of VET schools, and third by apprenticeship contracts between enterprises and individuals that is combined with VET school learning.

Beside these three forms of contact with the world of work (alternation, simulation, apprenticeship) two further characteristics are very important for VET in Italy: first the schools as well as apprenticeship institutions are *layered by three levels* of credentials, a. operator certificate (3-years, EQF three), b. technician diploma (4-years, EQF four), and c. higher technical education (IFTS institutions); second, the different tracks of VET schools are subsumed to *different levels of government* and thus to different governance systems, the (national) state at advanced level VET institutions and the regions/provinces at basic VET schools. Consequently “type 1 apprenticeship was operating separately within the two sub-systems, following different governance structures, regulations, procedures and practices and involving different providers [...] largely due to distinct governance structures at regional level and at state level.” (Rustico et al. 2020, 97). Grossly the two sub-systems have used different forms of contact with the world of work, alternation and simulation in the advanced state institutions, and apprenticeship in the regional/provincial vocational schools. The implementation of the apprenticeship system was to a high degree governed and regulated by the regions; a survey of the whole legislation documents about the dual system collecting only the titles of legal documents illustrates this degree of complexity of governance as a written collection of only the titles of legal documents covers a publication of more than 40 pages, thereof the titles of national regulations covering five pages, whereas the titles of regional regulations cover 40 pages (INAPP 2017a, 54-99).

National analyses of the short-term implementation of the 2015 Italian dual system reforms mainly by INAPP did not acquire very promising results, rather very diverse and limited steps of implementation in the complex VET system:

- The INAPP (2017b, 8) implementation analysis distinguishes eight categories of participation in different dual system and apprenticeship programs (three school and institution based dual system alternatives: 3-years, 4-years IeFP, and higher IFTS; four apprenticeship alternatives: operator, technician, IFTS, and general secondary diploma; and a flexible modular programme). The quantitative analysis aggregates these categories to three main alternatives, IeFP schools, IFTS institutions, and apprenticeships (INAPP 2017b, table 1, 12). At the end of 2016 the big majority of participants was enrolled in IeFP school forms (88 per cent overall), only 7 per cent attended apprenticeship forms, and 5 per cent the higher level IFTS institutions. In IeFP the majority of students (59 per cent of total) were enrolled in 3 years programmes, while the minority (29 per cent of total) were enrolled in 4th year IeFP courses (to obtain the technician diploma).

- The institution where most of dual system arrangements have been integrated are the IeFP VET schools (Istruzione e Formazione Professionale (IeFP). IeFP had been introduced in 2011/2012 through several regulations issued by the state-region conference and was mainly focused on initial VET activities providing three and four years' programs which allow to acquire the professional operator certificate (Level 3 EQF) and the professional technician diploma (Level 4 EQF). The following elements lay the governance foundations of the IeFP system: a set of training standards for basic skills in three and four years programmes; a set of minimum standards (valid at national level) for technical and vocational skills in relation to the occupation profiles included in the national qualifications register (around 22 occupation profiles); and a set of intermediate and final certifications that are valid at national level

(CEDEFOP, 2014). Despite these efforts, the IeFP system has included only 10% of the entire population of the secondary level (MIUR, 2016). The governance of the system was divided up between the central government and regions. Consequently, participants' numbers and courses' quality differ by region (CEDEFOP, 2014).

- The specific apprenticeship reform within the overall dual system measures was gradually implemented during an experimental phase and did cover only small parts of the national territory. According to the early monitoring actions conducted by INAPP (2017b) the apprenticeship form of work-based learning has been initially implemented only in seven regions, with focus in three regions (80 per cent in Lombardia, and together further 10% in Veneto and Lazio). However, the other forms of dual system in IeFP VET school pathways (alternation, simulation) have been activated in the vast majority of regions at the end of 2016 (some regions had not yet activated any kind of activity related to the reform at this point).

The summarizing assessment of the results of early monitoring of the implementation around 2017-18 gave rather modest hopes in the success of this policies. The Italian dual-system has taken first steps while the IeFP VET school system was strengthened. Hopefully the implementation of the dual system could offer new opportunities for young people that planned to continue beyond the three- and four-years programs to the higher level (Tacconi & Gomez, 2018), given that the proportion of tertiary qualifications in the population was comparatively very low. Because of the few data available it was too early at this point for judging the reform effectiveness. Observers recommended to collect qualitative data on experiences made by students, teachers, company trainers and tutors during the system experimentation. The Italian dual system as a predominantly state system was governed by the state and the regions, with local schools, institutions and enterprises as partners and attempts to create a collective skill formation system around apprenticeship (and supported by labor market policy institutions) was not much taken up by the various actors.

An early extensive analysis of the implementation of the Italian dual VET system (INAPP, 2017a) has given the following critical elements:

- unclear shared management between central government and local administrations,
- territorial heterogeneity of available training provision due to different local economic and social contexts,
- separation between the production system and the educational system, with the risk of leaving unanswered the new demands of the labour market (e.g. additive manufacturing skills), despite high unemployment,
- poor visibility of the system (Scalmato, 2015).

The reasons for the differences in implementation were attributed not only to different local policies, but also to the weak productive fabric in some regions and the consequent lack of company partners for apprenticeship and dual learning (Tacconi & Gomez, 2018).

Further research in the 2020s, mainly the systematic reanalysis of the CEDEFOP (2018) report (Rustico et al. 2020) and a recent comparative analysis of the school-to-work systems in Italy and Austria (Cefalo & Kazepov 2024) have reinforced and theoretically corroborated the pessimistic impressions of the early analyses.

The CEDEFOP re-analysis has found the reasons for the limited diffusion of apprenticeship in three broad factors, one of these were institutional and governance factors, beside a limited role of the social partners to employment issues and neglect of educational issues, and some design problems of the scheme including an overburdening of employers by too complicated regulatory demands on them (individual training plans). Among the institutional and

governance issues the split between the two unharmonized sub-systems of the (national) state and the regional implementation, the limited coordination between the social partners' responsibilities and the education authorities, and the inadequate links between education and the labor market intermediaries. Finally, the authors emphasize the "absence of a permanent coordinating body" and "incomplete regulation" and set big hopes in the establishment of a "national governance structure" (Rustico et al. 2020, 99-101). In a European comparative perspective, they see the problem that "the employment function of apprenticeships may end up overshadowing the educational and training considerations. Among the conditions that enable apprenticeship to work as a system, well-designed governance and inclusive partnerships are essential to ensure effectiveness and quality." (Rustico et al. 2020, 102)

The most recent comparative study by Cefalo & Kazepov (2024) of the school-to-work-(STW)-transition looks theoretically and empirically into the mechanisms of how the biggest promise of dual apprenticeship – the reduction of youth unemployment – might be brought about. They propose a "modular approach" that goes beyond the typologies of skill formation provided by political economy. The modular analytical framework of the mechanisms of school-to-work-transition breaks down the overall mechanisms into an interplay of education system and labor market both overlapping and situated within a particular welfare regime, whereby the VET system and skill formation, as well as the political intermediaries on the labor market (public employment service and active labor market policy) and specific STW-regimes are additional modules within the labor market and the education system. This framework allows for the analysis of the complexities involved in the interplay of these modules that finally leads to the outcomes of the school-to-work-transition. The study clearly replicates the previous results of the almost negligible implementation of dual apprenticeships that have not increased in the meantime, and of the complex and difficult governance involved in this implementation. However, with their focus on regional disparities they also show that in certain – quantitatively limited – regional constellations quite good preconditions for apprenticeship exist. "At the local level, several instances of stable cooperation among schools and companies, and in some cases the social partners, can be documented. These voluntaristic bottom-up networks often use available policy tools such as internships and dual or formal apprenticeships." (Cefalo & Kazepov 2024, 14). They also replicate the results about the essential influence of the local productive fabric on apprenticeship and both recent studies emphasize also the potentially essential role of labor market institutions and policies for apprenticeship, and their weakness in Italy.

Of broader importance in terms of the understanding of the role of governance in apprenticeship is the result of the modular analysis that the skill formation typology does not result in pure types but that in the case of Italy a hybrid skill formation system is found that combines traits of the state and the liberal type and to some extent (regionally) also includes traits of the collective type (Cefalo & Kazepov 2024, 14, 18).

Conclusions

In answering the first research question this paper has attempted to identify main problems with governance of apprenticeship in selected countries and to put them into a comparative space of different constellations of collective skill formation systems. Two pairs of countries were selected as cases of traditionally established dual apprenticeship systems (Germany and Austria) versus cases of political attempts of newly establishing dual systems (Hungary and Italy). Upper secondary VET education in dual apprenticeship in Germany is a paradigmatic

case that currently serves as a role model at international level. Austria with its traditionally established dual apprenticeship system is often classified akin to the former ignoring the fact, that the collective skill formation system in dual apprenticeship only makes half of the overall “dualistic” VET system, that in its second half is organized as a state system structured by different tracks of VET schools – in terms of governance this structure yields the challenge of coordination between the two types of education. The remaining two VET systems, Hungary and Italy, are – in different ways – trying to establish dual systems by integrating enterprises in VET on the background of established state systems and thus also create coordination problems between the different kinds of provision, schools and enterprises. A key development issue in these cases is the establishment of forms of work experience and work-based learning in their VET provisions – the concept of the German “dual system” is frequently used to denote such kinds of provisions.

However, the cases show that very different forms of work experience and work-based learning are meant by the expression of a “dual system”. The classic (German) meaning is an apprenticeship system built around an apprenticeship contract between learner and enterprise, complemented by periods (e.g., one day per week) of state schooling; this combination of work and school mainly constitutes the “duality”. Such a system is accompanied by state regulations and governed by various actors with the interest representations of enterprises and employees as a core and state institutions representing the school part. To create such a system means primarily to mobilize the enterprise sector for the provision of learning opportunities and organizing the system as a learning opportunity.

In addition to this paradigmatic structure our cases show very different meanings of a “dual system” that might be quite confusing. The meaning of the “dual system” in Italy contrasts quite diametrically its original meaning by establishing different variants of work-based learning in existing VET school pathways by alternating internships or simulated work (such forms are established in Austrian VET schools already for a long time, but nobody would call this a dual system). Apprenticeship is contrasted as a framework separate from the school-based dual system in Italy. In Hungary similar forms have been established as a “dual VET model” by a school reform process. In three of the four countries, except for Germany, the VET systems are tracked by three to four hierarchical levels, with Italy foreseeing building apprenticeships even at four levels up to higher VET. In practice, common with Austria, the development of new apprenticeships took place at the lowest level only in Italy and Hungary, despite attempts to set up such systems also at upper levels of VET; in Germany dual apprenticeship is differentiated, with about half of participation taking place by young people eligible to higher education. In the attempts to increase work-based learning in both countries the form of dual apprenticeship has reached only very low incidence over the decades.

A key issue in the establishment of collective skill formation systems concerns the motivation of enterprises and their interest organizations for engagement in education and training – this challenge can be identified as a main governance problem around collective skill formation in this respect. In Hungary the organizations of the enterprise sector were involved into the creation of regulations and quality assurance of state institutions, however, apprenticeships remained marginal and confined to lower-level qualifications. A main problem in Hungary has concerned the curricular distribution of general and pre-vocational school knowledge versus elements of practical training and work-experience that was successively changed by the reforms over time at the expense of the former – this issue also concerns the Austrian structure, where apprenticeship and VET schools differ fundamentally with the proportion of practical training and school learning.

We also see that governance problems are not only related to the establishment of collective skill formation, but also occur within such systems. The German analysis points to pitfalls in the integrative coordination among actors and sketches some approaches towards using evaluation for a more systematic analysis and a better understanding of how governance works and should work. The authors in Busemeyer & Trampusch (2012) observe even in this paradigmatic collective skill formation system a tendency by the most qualified large enterprises to escape from the state regulations towards a more segmentalist system with the focus on enterprise-based decision making. The Austrian analysis also deals with the coordination among actors, but the experience with the lifelong learning strategy leads to less optimistic expectations about the potentials of NPM-oriented governance. A main message is that politics must be taken into account and seems to be stronger than a quite carefully developed 'soft' governance strategy.

The Italian and Hungarian analyses are also situated on the edge of government politics and governance. They to give an assessment of recent policies towards VET in the countries. The governance problems they find point to some extent in opposite directions. In Hungary politics seemed to fail because of too powerful interventions, in Italy the interventions seem rather too weak to provide results. Both underline qualitative micro level aspects as being very important for successful policies: collecting qualitative data on experiences of the involved actors, and local learning communities are hoped to improve governance and politics efficacy. The Austrian experience makes us rather cautionary in this respect.

In answering the first question about the incidence of governance problems identified in the selected countries some common problems came out: first the different systemic contexts of VET and the different meanings of "dual system" are related to different distributions and constellations of the various actors in the governance systems, second in the different understandings of work-based learning the form of dual apprenticeship has gained only very small space in the newly emerging systems, third the mobilization of enterprises for the provision of learning opportunities is a common governance issue in collective skill formation, and finally the coordination across the multi-level structure from the national through the regional to the local level, combined with the coordination between state and private institutions was identified as a common governance problem.

The second research question concerns issues that have come up through the broadening of research about governance, and whether these new perspectives affect the analysis of the first round of results about governance in dual systems. The reviews about governance have extended the perspective on essential requirements of successful governance beyond instrumental factors to the relationship between technical steering and political issues and have pointed to cooperation dilemmas. The concept of collective skill formation has taken into account these issues to some extent; however, new research has guided attention to mixed systems that substantially increase the complexity already inherent in collective skill formation systems alone. Indeed, the analysis has clearly reinforced the plausibility of this view of mixed systems in Hungary and Italy where apprenticeship was infused in an existing state VET system. But also, in Austria and Germany this view is reinforced as Austria turns out as a mixture of state and collective skill formation and even in the paradigmatic case of Germany signs of a segmentalist system within collective skill formation are observed by research that might be triggered by conflicts between large successful enterprises and the state regulations within the collective system.

This leads to the answers to the third research question about newly arising governance issues and challenges from the selected cases/examples. The main issue coming up is the tension between the state system and the collective system in mixed systems that can be found in all of

our cases, even in Germany as the central-local balancing problem. Rustico et al. (2020,94) have pointed to the theoretical implications of this issue in a generalized way. “In Italy, as well as in other countries, the complex governance setting for apprenticeship requires a theoretical model that looks at the interplay between private regulation (by employer associations, firms, individuals) and state regulation as a creative form of policy solution.” However, a technical solution for these problems cannot be easily found, as the question arises of which instance might be conceived beyond the state and collective skill formation that could coordinate these elements. In the abstract these could only be the market or the subsumption of collective skill formation under the state; however, both solutions would destroy the key features of collective skill formation. This is visible in Italy where the traditional liberal form of apprenticeship is not strong enough for establishing this system on a broader scale and in other form in Hungary and Austria where a cooperation between the state and dual apprenticeship does not work, either because enterprises do not take their responsibility, or the two systems simply work in parallel with their coordination problems between each other.

Finally, to the fourth research question about conceptual or perceptive gaps arising from the work with the VET typologies around collective skill formation, also a quote by Rustico et al. (2020, 94) about the Italian case illustrates a main issue. “Besides statutory state law, apprenticeships in Italy are governed by regional regulations and by industrial relations through collective agreements stipulated at sectoral, cross-sectoral, national, local or plant level. Over time, a decentralised and flexible model gradually took the place of the initially mainly centralised and statutorily regulated arrangement.” In fact, the decentralized and flexible model has brought no better implementation results than a centralized regulation. Overall, the discourse about the establishment of dual apprenticeship and collective skill formation includes a big inherent perceptive gap that is not much explicitly considered. In political proposals we find on the one hand the strong concept that the dual apprenticeship system can only work out its strengths and effects when it is implemented as a holistic system with all its many ingredients including collective governance, on the other hand we find the clear and plausible argument by Euler (2013) that this were in fact impossible, and implementation could only be made in a selective and gradual way – obviously, this is a heavy contradiction that is materialized in our cases (Lassnigg 2023).

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