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Regional governance in second-tier city-regions in Sweden: a multi-scalar approach to institutional change

Brita Hermelin^a  and Bo Persson^b 

ABSTRACT

This study focuses on the formation and institutional changes of governance for regional development in three second-tier city-regions in Sweden. It explains the spatial relations of such institutional change. It integrates concepts from historical institutionalism in a spatial approach and investigates the path dependency of institutional change. This involves conceiving the mechanism of feedback effects and institutional changes of layering, conversion and recombination, and of how these play out differently within the three city-regions. The conclusions highlight the relations at different scales of different institutional changes.

KEYWORDS

governance institutions; regional development; institutional change; second-tier city-regions; multi-scale relation; Sweden

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INTRODUCTION

The decentralization of economic development policy from national to subnational scales has been a continuing trend for several decades (Rodríguez-Pose & Sandall, 2008). This drives the development of constellations of regional governance institutions to manage regional policy interventions for economic development. While the structures of subnational institutions share important similarities across different regions, they also display differences that have important impacts on how policy interventions are made in different regions. This article directs its focus on how governance institutions for regional policy interventions are formed across three city-regions in Sweden. City-regions have been proposed as important geographical contexts for governing development and economic growth (Jonas & Moisiso, 2018; O'Brien & Pike, 2019; Rodríguez-Pose & Sandall, 2008).

In recent years, the urban environments of second-tier cities have received increased attention through research, and are interchangeably named medium-sized, second-rank or second-tier cities (Camagni & Capello, 2015; Cardoso, 2018; Evans, 2015). In contrast to the general and strong economic growth of many first-tier city-regions, the development paths of what can be defined

as second-tier cities can vary. This is also the case for the cities selected for this article: Linköping, Västerås and Örebro. These cities are located in central Sweden and share three important characteristics: their position within the national city system as second-tier cities; their position as regional centres within city-regions; and their industrial tradition of manufacturing.


The national context of Sweden represents an example of a unitary state and a Nordic country with a strong welfare tradition. This is an important background conditioning the particular ways in which the decentralization of policy interventions and rescaling is developing (Pelkonen, 2016), with effects on how subnational governance institutions are formed. The subnational governance institutions studied in this article are organized through local authorities (the local industry office), regional political bodies (the regional development office) and triple-helix constellations (science parks) across three second-tier city-regions in Sweden. These different arrangements each have a different focus for their regional development interventions.

The present paper contributes to the debate within institutional geography on institutional change at the regional level (Mackinnon, 2020; Pike et al., 2017), with a focus on how the discussions have integrated concepts

CONTACT

^a (Corresponding author)  brita.hermelin@liu.se

Linköping University, Norrköping, Sweden.

^b  bo.persson@liu.se

Linköping University, Linköping, Sweden.

developed through a historical institutionalist approach (Evenhuis, 2017; Pike et al., 2015; Strambach & Halkier, 2013; Wink et al., 2017). The discussion seeks to think through the ways in which the adoption of concepts with a strong legacy from historical institutionalism for a geographical approach entails interpretations of spatial relations of institutions. The conclusion suggests that different governance institutions are formed through different structures of institutional change of varying spatial relations.

With this background, the article explains the development of regional governance institutions in terms of how these are shaped through institutional change with varying spatial relations. The next introductory section is followed by an outline of the background literature, which is summarized in a framework that directs the analysis of the empirical study. The following section presents the study design, empirical material and method. The section after that presents the empirical study and its results. The final section concludes and discusses policy implications.

GOVERNANCE INSTITUTIONS AND INSTITUTIONAL CHANGE

The aim of this article is to explain the development of regional governance institutions in terms of how these are shaped through institutional changes with varying spatial relations. It now explains the analytical approach employed to achieve this aim. This means discussing the integration of concepts from historical institutionalism in a spatial approach to regional governance. This discussion will focus on conceptions of institutions, multiscale relations and rescaling, and gradual institutional change.

In this study, institutions, much in line with the historical institutional literature, are conceived as structures that regulate the behaviour of actors in the polity and economy (Thelen & Mahoney, 2015). These regulatory structures can be formal, such as laws and regulations, or informal, such as norms and conventions. For present purposes, we also find it useful to differentiate between institutional arrangements and institutional environments. Institutional arrangements are the specific organizational forms institutions may take such as regulatory agencies or various governance arrangements. Institutional environments refer to a wider set of norms and regulations that structure the conditions for institutional arrangements (Evenhuis, 2017; Martin, 2000). This article's empirical discussion, with its focus on one type of institutional arrangement – governance institutions – involves a description of the evolution of three such institutions within each city-region. We will discuss how formations and changes in the investigated governance institutions are embedded within institutional contexts (i.e., aspects of the institutional environments and arrangements) across different geographical scales.

The discussion will focus on the regional governance institutions established through government decisions (at different levels of government), which is a type of institution that has received little attention within institutional

geography (Evenhuis, 2017; Martin, 2001), and arguments are made for developing 'a geography of public policy' (Martin, 2001, p. 206). We think this focus is important when contributing to an understanding of the institutional aspects of development policy (Rodríguez-Pose, 2020). Nevertheless, although the regional governance institutions chosen for the empirical study are primarily organized through the public sector, they are also, to varying extents, cross-sectoral (Evenhuis, 2017; Pike et al., 2015).

It is important to be aware of the interdependencies between formal and informal institutions (Pike et al., 2015). For instance, if the national government defines specific programmes for economic growth (i.e., formal institutions) to be implemented at regional and local scales, this may have an impact on the conception – i.e., informal institutions – of what represents an eligible strategy. Informal institutions are important factors driving agency and how resources are distributed; however, observing them through empirical research is challenging (Boschma & Capone, 2015; Rodríguez-Pose, 2020). Through shared ideals of what is eligible, policy may impact on development through the way in which it incentivizes agency (Moodysson et al., 2017). In this way, it is suggested that the regional contexts of industrial structures and organizations (representing formal institutions), as well as ideals and social capital (representing informal institutions), and their trajectories over time, have important impacts on how the investigated institutions are formed.

The second key component to be defined concerns the multiscale relations of the governance institutions on which this article focuses. Because the national level has been the main point of departure for the way in which historical institutionalism has been developed, primarily in comparative studies of public policies and political economies, the adoption of this approach for regional studies has motivated an exploration of a scale-sensitive conception of institutional changes. Evenhuis's (2017) work in this direction has been an important point of departure for how this article contributes to this task. This aspect is particularly relevant for the wave of decentralization of regional development policy (Martin, 2000, 2001; Rodríguez-Pose & Sandall, 2008), which is integrated in parallel changes of upscaling and downscaling. The upscaling of regional policy includes movements from the national to the supranational (e.g., European Union – EU) scale and from the local to the regional scale. Downscaling involves movements from national to various subnational scales (Pelkonen, 2016). Rescaling should not be misapprehended as describing 'pure' movements between scales, because it also involves the reorganization of scalar relations for shared responsibilities (Brenner, 2003).

The scale-related approach taken by the discussion overlaps with arguments about how place-based processes and extra-local relations interact (Martin & Sunley, 2015; Martins, 2016; Morgan, 2016; Trippel et al., 2018). With regard to the case of second-tier city-regions, the spatial relational approach has highlighted how the interplay

between local qualities and extra-local interconnections impacts on development (Camagni & Capello, 2015; Meili & Mayer, 2017), as well as the importance of extra-local relations for the development of regional economies (Grillitsch et al., 2019). The model of regional anchoring is an approach that is of interest for the role of the institutional capacities of regions, and how this may foster local absorptive capacity through connections with pools of knowledge generated elsewhere (Crevoisier & Jeannerat, 2009).

The third aspect of our analytical approach refers to changes over time, as seen through the lens of institutional stability and change. For this aspect, we adopt discussions of historical institutionalism for which institutional stability, rather than change, has often been the focus. A dominant explanatory model for the persistence of institutional characteristics has been path dependency (Hall, 2016; Thelen & Mahoney, 2015). This corresponds to a key interest in perspectives on regional development, which explores the relations between path dependency and institutional structures (Boschma, 2015; Farole et al., 2010; Henning et al., 2013; Martin & Sunley, 2015; Rodríguez-Pose, 2013).

The discussion about regional economic change in old industrial regions by Grabher (1993) is a seminal work for how the debate on path dependency has been adopted for regional studies. This study investigated the stagnation of the old industrial area of the Ruhr and identified various aspects of lock-in effects (Evenhuis, 2017; Strambach & Halkier, 2013). The trajectories of the city-regions investigated in this article can be considered to represent examples of old industrial regions, with different trajectories for industrial restructuring (Christopherson et al., 2014; Trippel & Otto, 2009).

With this aspect of incremental change in mind, the analytical scheme for this study on governance institutions employs the concept of feedback effects as a central mechanism for studying the duration of institutional structures. Feedback effects are generally defined in the historical institutional approach as referring to a situation in which, when a particular institutional structure is in place, the actors will have strong incentives to adapt their behaviour and strategies to this structure in ways that reinforce the logic of the system (Hall, 2016). In more concrete terms, feedback effects relate to how conditions affected by sunk costs, knowledge structures and self-reinforcing expectations impact on development paths. Local alliances between dominant industries are strong institutions driving feedback effects (Wink et al., 2017). The notion of feedback effects highlights some intriguing questions about the directions of causality between governance institutions and economic structure (Evenhuis, 2017; Farole et al., 2010; Martin & Sunley, 2015; Rodríguez-Pose, 2013) and that the effect of local institutions on development 'seems to be two-edged' (Pihkala et al., 2007, p. 839).

However, researchers in the historical institutionalist tradition argue that path-dependent processes are not only dependent on feedback processes, but also on

processes of institutional adjustment (Mahoney & Thelen, 2010). For our empirical analysis, we have chosen to focus on three types of incremental change for intentional adaptation discussed in the literature: layering, conversion and recombination (Evenhuis, 2017; Martin, 2010; Pike et al., 2015). This excludes more radical types of change (such as dismantling institutions or churning), or non-intentional changes (such as drift). This focus for the analytical aspects is motivated by our empirical context and delimits the discussion from including aspects of institutional change that have been adopted for institutional geography in other empirical contexts. This refers, for example, to empirical research in Germany and the UK (Evenhuis, 2017; Pike et al., 2015; Wink et al., 2017). Comparing the legacy of the concepts on which we are focusing for our analytical approach, layering and conversion could be maintained to be more central for the historical institutionalism approach than recombination (Streeck & Thelen, 2005). The background to how recombination has become important for institutional geography may be understood from the wave of studies that take a relational economic geography approach, with its important focus on aspects of networks and connections (Rantisi & Boggs, 2020).

Table 1 summarizes definitions from the literature on the institutional changes of layering, conversion and recombination, and the circumstances in which they are most likely to occur. Layering is considered to be the most likely process in situations providing 'veto possibilities' for defenders of the institutions, making it more open to adding a new layer than to changing or reinterpreting the existing arrangements (Mahoney & Thelen, 2010). Evenhuis's (2017) discussion of the concept in a regional governance context argues that this kind of pattern is often the result of top-down decisions (made by, for example, states or regions) that challenge the existing institutional order. Conversion refers to the reorientation of institutions and the redeployment of existing arrangements for a new purpose (Streeck & Thelen, 2005). These changes have been connected in the literature to institutional arrangements that are fairly open to interpretation and where the defenders of the existing design of institutions have few 'veto possibilities' (Mahoney & Thelen, 2010). The drivers behind conversion may originate from below, from actors who are 'operating within the institutional arrangement in question', or driven by new goals or changes in 'external circumstances' (Evenhuis, 2017, p. 521), including national and EU programmes. Finally, recombination refers to the re-amalgamation of resources, properties and actors to (re-)form functions and practices that are maintained to be important for regional contexts (Evenhuis, 2017).

Empirical study

The research design of this empirical study is a comparative case study that serves to reveal the varieties of institutional change in regional governance institutions (McFarlane, 2010) across three city-regions. The selection of cases is based on the logic of a most-similar cases design,

Table 1. Different types of gradual institutional change.

Type of institutional change	Definitions
Layering	<ul style="list-style-type: none"> Layering means that ‘an institution is changed gradually by adding new rules, procedures, or structures to what already exists’ (Martin, 2010, p. 14); and it ‘may set in motion modifications that over time interfere with the stable core’ (Mahoney & Thelen, 2010, p. 17) Layering is found to be a strategy that is most likely to be seen in situations when it is assumed to be easier to add a new layer than to change existing arrangements (Mahoney & Thelen, 2010)
Conversion	<ul style="list-style-type: none"> Conversion is the reorientation of institutions and the redeployment of existing arrangements for a new purpose (Evenhuis, 2017, citing Streeck & Thelen, 2005) Conversion can be affected by the modification of rules, procedures and practices (Pike et al., 2015) Policy learning may drive conversion through which ideas and models for development are disseminated across regions (cf. Moodysson et al., 2017)
Recombination	<ul style="list-style-type: none"> Recombination refers to the re-amalgamation of resources, properties and actors to (re-)form functions and practices. This is driven by consent and agreements between actors to collaborate on particular aims and tasks (Evenhuis, 2017; Pike et al., 2015)

which means that the city-regions share some structural similarities and that we have selected the same set of three governance institutions for all three regions. Using this design logic of most-similar cases means that some potential explanatory factors, which could influence the phenomenon under study, can be kept constant (George & Bennett, 2004). This facilitates the possibility of identifying and reflecting on how variations in the design of the institutions across the different city-regions depend on, for example, different feedback effects through particular geographical contexts and regional trajectories, or the capacity to mobilize regional coalitions of actors.

The empirical exploration primarily considers the period from the early 1990s until around 2020. This represents a period during which regional development policy has undergone quite substantial organizational and discursive changes. To cover this period, we have drawn on earlier studies on these city-regions, including some published work by the present authors, and recently compiled primary and secondary empirical material. The latter includes interviews with respondents who represent the investigated governance institutions, and information from websites and documents. The interviews contribute with important information on the present situation, as well as reflections on the evolution of the regional structure of governance institutions. In addition, secondary data are used to describe the contexts of the three city-regions.

REGIONAL GOVERNANCE INSTITUTIONS IN THE THREE CITY-REGIONS

This section starts with a presentation of each city-region to describe the contexts for the investigated institutions

and then explores and compares the different governance institutions across the city-regions.

The city-regions

The urban centres Linköping, Örebro and Västerås of the city-regions represent socioeconomic contexts and legacies that are similar in several ways. They are similarly sized, second-tier cities within the Swedish city system and have a history of manufacturing industry and industrial restructuring. However, there are also differences including variation in the type of industrial specialization and structure, the presence of higher education institutions and growth paths. Table 2 shows that the municipalities of the urban centres of these city-regions are becoming quite substantial compared with their surrounding regions, and that Linköping city and region has comparatively strong growth. In general, population and employment have increased for the cities and well as for the wider regions. There is one exception: employment has declined for the Västerås region.

Starting with Linköping city-region, which is located in central-southern Sweden, its urban centre is located in the fifth largest municipality in Sweden. The strong development of the defence company SAAB, located in Linköping, is of primary importance for the regional strength in a knowledge-intensive industry, with specialization in engineering and information technology. It has a university that conducts advanced technical and medical research, and a connected university hospital. The recent dynamic development of Linköping means that Linköping has become the indisputable economic centre of the region. Earlier studies have described Linköping city to be an environment that follows traditions of consensus

Table 2. Population and employees for the core municipality and county for each city-region.

		Linköping	Örebro	Västerås
Population in 2018 (population change for 1993–2018)	Municipality	161,034 (25%)	153,367 (24%)	152,078 (25%)
	County	461,583 (12%)	302,252 (10%)	273,929 (5%)
Number of employees in 2018 (employment change for 1990–2018)	Municipality	86,366 (24%)	80,318 (20%)	74,573 (11%)
	County	215,778 (5%)	142,005 (9%)	127,777 (–7%)
Percentage of employees in the private sector in 1993 (employment change for 1993–2018 in the private sector)	Municipality	62% (90%)	57% (85%)	66% (58%)
	County	62% (58%)	58% (24%)	64% (38%)

Source: Statistics Sweden.

decision-making (Amnå & Richter, 2007; Persson, 2010). The empirical study conducted for this article confirms this culture, which is promoted through what seems to be a balanced structure of institutions, of which the university, the hospital and SAAB are important components. Interview respondents for Linköping described a currently favourable situation for Linköping in terms of its high levels of employment in growing industries.

Örebro city-region is located in the central part of Sweden, and its urban centre, Örebro, is the sixth largest municipality in Sweden. Compared with Linköping and Västerås, the percentage of total employment in Örebro in manufacturing is small, while employment in the public sector is high. This city was more severely affected – compared with Linköping and Västerås – by the economic recession of the 1990s in terms of job losses. However, the main effects of de-industrialization occurred before this severe recession (Strömberg, 2015). The importance of employment by the central state is reflected in a quite substantial university located in Örebro. Although Örebro is clearly the dominant city in this region, the discussion below illustrates that relations of negotiation with the neighbouring city of Karlskoga, with a strong tradition in defence-oriented industrial production, imply some challenges to the development of governance institutions for regional development (Persson, 2018).

Among the three city-regions investigated, Västerås is the closest to Stockholm, the capital of Sweden. This location has implications for the development of its governance institutions. Västerås municipality – representing the urban centre for this region – is the seventh largest in Sweden. This city-region has a very strong legacy from the engineering-based manufacturing industry, and the multinational company ABB is a dominant company. Compared with the city-regions of Linköping and Örebro, this manufacturing industry has been less affected by de-industrialization in terms of loss of local employment. Västerås lacks local access to a general university, although it does have a campus

for a university college, which is strongly profiled towards the technical and industrial sector. The importance of the private sector in general, and the manufacturing industry in particular, is a key component impacting on the formation and activities of the governance institutions in Västerås. A previous study on the culture of government and governance in Västerås suggested that this could be described in terms of the ideals of a private company (Amnå & Richter, 2007). The values of the business sector are described as being a stronger source of inspiration among local politicians in Västerås than in most other places (Henning, 1996). Our interview material describes recent major incoming investment from international companies into operations located in Västerås.

Local industry offices

The discussion exploring and comparing the development of governance institutions commences with the offices of local industry. These offices operate through the local authorities and are primarily engaged in facilitating local networks for communication and knowledge sharing. They are also involved in dialogues about strategies for physical planning, local infrastructure and local welfare services with regard to how this can support the development of local industry (Hermelin & Trygg, 2018).

In Linköping in the late 1990s, reflecting the impact of the entrepreneurial turn for industrial policy, the local office was converted into a public company owned by the municipality and can be described as developing into a lobbying organization for the business community (Persson, 2010). In 2017, this company was dissolved and the industry office was integrated in the administration of the local authority and placed in the division for the highest political and administrative level. This reorganization of the local industry office may be interpreted as an effect of conversion through its own organization. The interview respondent explained that the organizational integration of the

industry office in the administration involves the integration of industrial policy in different policy areas of the local authority (interview Linköping, 2019). Previous studies and information from a recent interview show that the industrial policy of Linköping plays a role in the wider territory of the city-region, representing a driving actor in coordinating regional development policy (interview Linköping, 2019; Persson, 2010).

The policy turns towards an entrepreneurial discourse for industrial policy in the late 1990s, as explained for Linköping, also had implications for Örebro. This involved strategically integrating the needs and activities of the company sector with local policy. Models for place-branding and place-marketing were introduced, which motivated a local initiative called the Örebro Promotion (Olsson, 1995). Örebro's reorientation of the local industry office in recent years is similar to that described for Linköping above, meaning the integration of the local industry office in the general policy and governance arrangements of the municipality. The director of the local industry office is involved in central strategic groups within the authority (interview Örebro, 2019) and this also applies to Linköping and Västerås (interviews Linköping and Västerås, 2019).

With regards Västerås, for a long time the development of local governance has evolved through a strong alliance between the political leadership and the leaders of the major industries (Henning, 1996). During earlier periods, the local industry office was handled solely by a partnership company in which both the municipality and the industries were stakeholders (interview Västerås, 2019). This company still exists, but it has been reorganized, and now parts of the local industry office are integrated in the local public administration. The strategy of retaining the company for the industry office can be interpreted as feedback effects due to the dominance of strong industrial actors in Västerås. The local respondent for the industry office described a local awareness of the risks of lock-in effects, which are shaped through the local legacy of the dominance of quite specialized companies within the engineering-based industry. This also reveals strong ambitions to drive the reorientation of ideas towards nurturing efficient strategies to achieve industrial renewal. The dominance of international companies in Västerås means that the local development office becomes involved in international interactions (interview Västerås, 2019).

Thus, in different ways, our empirical material can describe similar waves of conversion, originating around the 1990s, of the various local industry offices through the policy turn towards entrepreneurial ideals. The reorganization of industry offices in recent years to become more integrated with public administration needs to be understood through the wider context of the general wave of proliferation of regional governance institutions. The respondent for the local office in Linköping explicitly stressed the importance of considering the role of this organization in relation to the entire system of institutions in the city-region; this reflects aspects of recombination.

The institutions are fairly open, not at all strictly regulated, and therefore easily adopted and redirected to new goals and purposes. The process in Västerås can be interpreted as a typical layering process where, due to strong defenders of the existing institutional structure, change agents add a new institutional element to the structure rather than dissolving the existing arrangement.

The regional development office

For the discussion about the regional development offices, it is important to explain recent national decrees, which have involved the formation of political-administrative bodies named regions. These are commissioned to work with regional development. The formation of regions means, in brief, the extension of county councils' responsibilities for healthcare and public transport to include tasks for regional policy interventions, for which innovation policy and industrial development policy are important elements. The inauguration of regions reflects the rescaling of regional policy interventions, which includes upscaling from the national to the EU level and from the municipal to the regional level and downscaling from the national to the regional level (Jonas & Moisio, 2018; Pelkonen, 2016). The downscaling of regional development policy from the national to the regional level is evident in our empirical material through the way in which tasks are being moved to regions from the county administrative boards, which are offices of the national government covering the territories of regions. The upscaling of regional development interventions can be interpreted more indirectly pertaining to how local industry offices chose to concentrate their tasks when the regions were organized, as described above. However, although the formation of regional political bodies is a national reform, we will describe below how the regional development offices – which are offices for the regions – to a certain extent operate in different ways.

Starting with the regional development office in Linköping, formally established in 2015; this has an important pre-history through the Municipal Cooperation Council, which consisted of representatives from the county council and the municipalities in the county. Already by the late 1990s, this cooperative council had taken over regional development tasks from the county administrative board (i.e., the state) (Persson, 2010). When the region was formed in 2015 (named Östergötland), the tasks related to working with regional development interventions were moved from the Municipal Cooperation Council to the region (Hermelin & Wänström, 2017). The regional development office located in Linköping is quite active, with high ambitions to facilitate the regional innovation system. This has involved the establishment of an office in Brussels to work towards the EU and to connect with international partners. It has also involved the application of innovation policy to operation of the region's health services through the hospital, which is a university hospital integrated with research resources through the university (interview Linköping, 2019).

Turning to the trajectories for the regional development office in Örebro, the responsibility for regional development was moved to the Municipal Cooperation Council for Örebro, established in 2006 (Johansson & Niklasson, 2013). The inauguration of the partnership Business Region Örebro in 2015 institutionalized collaboration across local authorities in the region and aimed to support economic growth and inward investment. The region of Örebro was also inaugurated in 2015. Our empirical material suggests, however, that the capacity of the region of Örebro for regional development interventions has not been consolidated at a similar level to the regional development office in Linköping. This seems to be related to the role of Örebro city within the regional context and can be interpreted as an example of the complex negotiation and collaboration between cities and regions in the upscaling of regional development tasks from local to regional political levels. The joint initiative between the municipality of Örebro and the region of Örebro to establish the Business Region of Örebro, which is an organization designed to attract business to the region, reflects this complex intermingling of local and regional bodies for development interventions (interviews Örebro, 2019).

The trajectories leading to the inauguration of the region of Västmanland in 2017, named Västmanland, differ quite markedly from the trajectories for the regions with development offices in Linköping and Örebro. The county administrative board (i.e., the state) remained responsible for regional development until 2017. In general, the work through the regional development office in Västmanland appears to be less well consolidated than that in Linköping and Örebro. This can be exemplified by the observation that the regional development office share facilities (such as the Brussels office) with other regional bodies. The geographical location close to Stockholm is described as making Västmanland region a quite dependent partner in collaboration with actors in the capital region (interview Västmanland, 2019). It may also be assumed that the absence of a strong public sector in the Västmanland region in general has hampered the consolidation of regional development work through the regional body. In this way, the establishment of the regional development office in Västmanland can be characterized as driven primarily from the top down by quite recently adding a layer to the existing institutional arrangements.

Thus, it is evident that the operations of the development offices, representing quite recent layering, follow different trajectories impacted by variations in feedback effects. These variations are, to a significant extent, formed through the municipalities' responses to the formations of these institutional arrangements and which makes a difference for the institutionalization of regional development offices.

Science parks

The third regional governance institution discussed here is the science park. These are present in many regions in Sweden and have been established during the general

wave of the ideal of triple-helix collaborations for regional development (Lindholm-Dahlstrand & Klofsten, 2002). The science parks located within the three city-regions of Linköping, Örebro and Västmanland represent different collaborative constellations with local authorities, the region, higher education institution and the company sector. The strong focus on innovation in science parks relates to how these organizations source funding from programmes that have been developed through national and EU innovation policy. The science parks are more operative for regional development work than local industry offices and regional development offices.

Of the city-regions investigated, the first science park was inaugurated in Linköping in 1984. The initiative was largely the result of efforts by the university and Linköping municipality (the local industry office and the local real estate company owned by the municipality), but is also a reflection of strong alliances between the municipality and the dominant local industry company, SAAB (Persson, 2010). The science park can be considered an example of quite typical layering. Furthermore, during the development of the science park in Linköping region, leading representatives of both private and public bodies acted in many ways as institutional entrepreneurs (inspired by similar arrangements in other countries), leading to recombination. At present, the local authority is the owner of the science park, which is located adjacent to the university in Linköping. This science park has expanded into a quite extensive district, with premises for office space. The present director explains that the science park focuses on four missions: business development for companies, open innovation, the physical structure of premises and facilitating networks to support company development. Local and national public and EU funding, the company sector, and the university provide the science park with resources for its operations (interview Linköping, 2019).

As in Linköping, a science park structure has been developed in Örebro as a new layer to the institutional arrangement for regional development, but at a much slower pace. In the early 2000s, two science parks were established: one close to the university in Örebro and one in Karlskoga, a neighbouring municipality. The current park, Alfred Nobel Science Park, was established in 2014 through a merger of the two parks (interview Örebro, 2019). The owners of the regional science park are the regional body, Örebro municipality and Karlskoga municipality. The general objective of the science park is to support connections between university researchers and industrial partners and to strengthen innovation platforms in the region (Alfred Nobel Science Park, 2019). The site in Örebro has no specific accommodation for companies but has an office located on the university campus. In Karlskoga, there is a smaller site with offices for companies, adjacent to the quite advanced defence industry, which has dominated the municipality's economy for many years. What appears to be a comparatively slow and not very dynamic development of the science park in Örebro can be understood to be a result of the competing situation between two local authorities and two different

local environments with different profiles and trajectories. Additionally, the lack of a strong technology profile for industry or the university in Örebro are likely to have impacted the relatively modest development of the science park initiative. The lack of a tradition of cooperation (which even amounts to distrust) between the municipality and the university (previously the university college) explains the slow institutional evolution in this area of university/industry/public sector cooperation (Persson, 2018).

The science park in Västerås was inaugurated in 1998 and set up as a private company, with ABB as a majority owner. Our interview respondent explains that a researcher from the local university college was an important driver behind the inauguration of this science park. The identification of a single person as a driver may also be considered to represent the comparatively small and tight environment of Västerås compared with Linköping and Örebro, which are slightly larger and, in some ways, more diverse. The organizational status of Västerås' science park as a private company has continued. The owners are public bodies (including the local authority and the regional body) and private companies (interview Västerås, 2019). Financial resources for the park's operation stem primarily from the public sector, and include the local authority, the regional body, national bodies and the EU. The respondent explains that interventions through the science park target the importance of encouraging 'rethinking' and conducting experiments, which contrasts with what are described as the nostalgic ideals of Västerås' proud industry legacy (interview Västerås, 2019). This signals an explicit aim to break through the lock-in effects of the strong formal and informal institutions of the industrial structure.

Thus, in comparing the three city-regions, it appears that the situation for the work of science parks in Örebro and Västerås is nested within circumstances of lock-in effects. The strong institutions of the company sector in Västerås appear to nurture a culture that seems, in some respects, to be interpreted as impeding the capacity for the reorientation of strategies for regional development. The absence of a strong industrial partner in Örebro can be considered a structural hole for driving triple-helix initiatives, and the competition between the two cities of Örebro and Karlskoga appears to hamper the regional consolidation of resources. In Linköping, on the other hand, the development is a consequence of a more consensus-oriented institutional environment which has nurtured continuous mobilization of regional actors through the interplay of layering and recombination.

CONCLUSIONS: THE SPATIAL RELATIONS OF INSTITUTIONAL CHANGE

Following our aim to explain the development of regional governance institutions with respect to how these are shaped through institutional change with varying spatial relations, in this section we draw conclusions based on the results. With regards to the institutional changes represented through layering, which refers to 'adding new

rules, procedures, or structures to what already exists' (Martin, 2010, p. 14), this is clearly represented through the formation of regional development offices and science parks. Evenhuis's (2017) study of regional institutions shows that regional institutional change through layering is, in different situations, connected to decrees from above. Throughout our study, this is evident particularly through national decrees inaugurating regional development offices. Additionally, the formation of science parks is driven in important ways by layering connected to policymaking from above through powerful programmes stemming from the EU and national government.

We also show that layering through decrees and policy programmes from above can be integrated with conversion processes. Conversion refers to the reorientation of institutions and redeployment of existing arrangements for a new purpose (Evenhuis, 2017). This can be exemplified by the way in which the empirical material illustrates that the formation of a regional development office for Östergötland (located in Linköping) (i.e., layering) has triggered the implementation of innovation policy for the management of health services (i.e., conversion). This integration of layering and conversion is also evident in the incremental changes to initiatives made through the investigated science parks; for instance, how the concept of the quadruple helix has been adopted through the science park in Linköping (interview Linköping, 2019).

Conversion is quite dominant in the transformations of the local development offices. The importance of conversion relates to the fact that the operations of local industry offices in general are non-statutory and managed through the resources of local authorities, that is, bottom-up. Nevertheless, it was also explained that the conversion of local industry offices involves similar developments for the three city-regions, an indication that conversion is generally driven by 'top-down' ideals adopted through local interventions. Conversion may also be encouraged through horizontal relations, which can be illustrated by how the respondents for Västerås describe the institutions in the fast-growing city-region of Linköping as a benchmark. The rearrangement of these local offices may also be interpreted as representing different ways of layering. This is most evident in Västerås, where the local company for industrial development continues to exist and the division of the industrial office within the public administration represents a new layer. This reflects strong feedback effects from the ideals of the private sector in this local environment.

Recombination, compared with layering and conversion, has a strong relationship with the regional context and regional feedback effects. Recombination among regional actors is an important type of change for how regional governance institutions are consolidated and their ability to leverage regional development. However, recombination should not be misinterpreted as describing locally closed systems. Extra-local relations are important means through which recombination may occur, and in this way resources are harnessed. The respondents for

Table 3. Scalar relations of three types of institutional change and illustrative examples of these derived from the study.

Institutional changes	Levels		
	Regional/local	National/Sweden	International/European Union (EU)
Layering	Reorganization of local industry offices (adding a new organizational body) through the decision of the local authority	Establishment of regional development offices through decrees by the national government	Establishment of regional development offices motivated through a focus on the regional level for EU Cohesion Policy
Conversion	Reorientation of interventions through local industrial offices directed by dialogues between the local government and local industry	Reorientation of interventions through the regional development offices directed through funding from national programmes, which in turn aligned with EU policy	Orientation of interventions of science parks aligned with international models and with programmes through the EU
Recombination	Establishment of science parks driven by regional consensus-oriented policy coalitions	Involvement within networks through nationally funded development programmes	Regional development offices' involvement within international partnerships developed through connections within the EU facilitated through offices in Brussels

the science park and the regional development office for Linköping city-region were strongly engaged with this aspect of extra-local relations, which involved working through international contacts of the university and the companies, and through relations with the EU.

This discussion about the spatial relations of institutional change for the investigated governance institutions is summarized in Table 3. Boxes in darker shades of grey indicate the greater importance of those particular scalar relations. The text gives illustrative examples. It is important to acknowledge that all the boxes are filled in (although in different shades), indicating that different institutional changes are conditioned through the interplay of various different scales, but with different weights. It is also important to consider that within this general scheme the empirical material also illustrates variations in the scalar relations of institutional change for the different city-regions.

The conclusions on the spatial relations of institutional change, as shown in Table 3, may be summarized in two main points. First, it illustrates the way in which recent institutional changes in regional governance institutions have become strongly embedded within a spatially bipartite grounding, with both regional and international (i.e., EU) scales being important. While this is particularly evident for conversion, layering awards the national state an important role, which is especially important for unitary states such as Sweden. This reminds us of the importance of considering what is actually being referred to in rescaling development policy (Brenner, 2003) and decentralization of development interventions (Rodríguez-Pose & Sandall, 2008). There are, for instance, important

contrasts between delegation referring to the transfer of policy responsibility although central government remains accountable and alternately devolution which means the stronger autonomy of local bodies for policy (Pike et al., 2016). Aspects of delegation through the central state is visible through scalar relations of conversion and recombination as typified in Table 3.

Second, Table 3 suggests that institutional changes through conversion and recombination are formed in important ways by regional feedback effects. This illustrates the importance of regional conditions for recombination, and which supports the arguments that development policy needs to be place based (Barca et al., 2012). It also explains why the present model of decentralized regional governance makes it difficult for slow-growing regions to mobilize resources to achieve development (Crescenzi & Giua, 2016) and highlights how regional differences are an inherent aspect of such regional development policy (Pelkonen, 2016). This suggests an approach that balances assumption about the importance of resources to be generated from the uniqueness of regions with a recognition of the challenges derived from the regionally uneven effects of international and global economic and industrial restructuring.

Overall, this article is an attempt to propose an avenue for a space- and scale-sensitive understanding of institutional change. However, it is important to acknowledge that the broad scope of the investigation for a qualitative and narrative strategy has involved the use of empirical material to identify aspects of conceptions and to develop theory, rather than to generate a systematic confirmation of its generalizability. Further empirical research needs

to be undertaken in order to qualify the ways in which the scalar relations of different institutional change suggested here can be recognized for different institutional arrangements within different geographical contexts. The present discussion has also refrained from describing the effects of governance institutions on regional development (Evenhuis, 2017). This would be an important aspect to consider, together with how such effects turn into feedback effects to enable continual changes in regional institutions.

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ORCID

Brita Hermelin  <http://orcid.org/0000-0003-2404-0624>
Bo Persson  <http://orcid.org/0000-0002-8377-0929>

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