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Institutional Thickness Revisited

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Over the last two decades, the notion of “institutional thickness” has become a key reference for a large body of work that has sought to provide profound insights into the link between institutions and regional development. However, only few attempts have been made to reassess the concept, to improve its methodology and to reflect upon its empirical application. The aim of this paper is to identify some crucial limitations of the theoretical and empirical work on institutional thickness and to sketch out elements of a strategy that could help to advance the debate on the notion. It is argued that much can be gained by (1) employing a clear analytical distinction between the organizational and institutional dimensions of thickness; (2) moving beyond overly static views on thickness; (3) developing a multi-scalar approach to thickness; and (4) acknowledging that thickness can only be assessed in relative terms.

JEL codes: D29; O18; P48

Keywords: Institutional thickness; Institutions; Organizations; Multi-scalar analysis

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Institutional Thickness Revisited

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Abstract

Over the last two decades, the notion of “institutional thickness” has become a key reference for a large body of work that has sought to provide profound insights into the link between institutions and regional development. However, only few attempts have been made to reassess the concept, to improve its methodology and to reflect upon its empirical application. The aim of this paper is to identify some crucial limitations of the theoretical and empirical work on institutional thickness and to sketch out elements of a strategy that could help to advance the debate on the notion. It is argued that much can be gained by (1) employing a clear analytical distinction between the organizational and institutional dimensions of thickness; (2) moving beyond overly static views on thickness; (3) developing a multi-scalar approach to thickness; and (4) acknowledging that thickness can only be assessed in relative terms.

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1 Introduction

Explaining how institutions shape regional development has long been a recurring focus of enquiry in economic geography and innovation studies. Scholarly work has highlighted that institutions have a pervasive influence on the socio-economic evolution of regions. They condition, enable and constrain the economic vitality and innovation capacity of regions, providing legal frameworks for actions, defining communication patterns and affecting learning possibilities (Martin 2000; Gertler 2010).

Many contributions dealing with the role of institutions in regional development refer to and have been inspired by Amin and Thrift's (1994) work on "institutional thickness". This concept has become a key reference work of what has been called the "institutional turn" in economic geography. Indeed, the notion of institutional thickness has been widely used, offering crucial insights into a set of non-economic factors that underpin regional economic development.

Notwithstanding its enduring popularity, the concept of institutional thickness is not without its shortcomings, and interestingly, apart from a few notable exceptions (see, for instance, MacLeod 2001; Coulson and Ferrario 2007), over the past twenty years surprisingly little has been done to further elaborate on the conceptualization of institutional thickness or to improve its methodology in substantial ways.

The aim of this paper is twofold: First, we intend to identify some crucial limitations of the concept of institutional thickness and highlight a number of problems that have thus far remained unresolved. Second, we seek to sketch elements of a strategy that could help advance the debate, addressing some key conceptual and methodological issues. We contend that there are several

key shortcomings that loom large in the debate on institutional thickness. Based on this critical review, a number of suggestions for future work are offered. We see considerable value in (1) distinguishing between the institutional and organizational dimensions of thickness; (2) developing a more dynamic view on thickness; (3) advocating a multi-scalar approach to thickness; and (4) assessing thickness in relative terms.

We outline how these issues could be addressed in conceptual terms and highlight which methodological improvements need to be made to gain new insights into the nexus between organizational and institutional thickness and regional development.

The strategy sketched in this paper may not only contribute to a redefinition of the original concept of institutional thickness. It could also enrich economic geography more broadly by informing current attempts that aim to bring together institutional and evolutionary perspectives to explain how institutions (and organizations) affect forms and directions of long-term regional industrial change.

2 Institutional thickness: a critical review of the literature

Amin and Thrift's (1994) work on institutional thickness is one of the most-cited contributions in economic geography and regional studies that aim to treat institutions seriously. This section offers a brief review and critical discussion of the original concept and of the theoretical and empirical literature that has emerged since the notion's introduction in the 1990s.

2.1 Original concept and its theoretical development

The origin of the institutional thickness concept can be found in the seminal work of Amin and Thrift (1994). They define institutional thickness as “a simultaneous collectivization and corporation of economic life, fostered and facilitated by particular institutional and cultural traditions” (Amin and Thrift 1994, 15). According to the authors, it is associated with four factors: a strong local institutional presence; high levels of interaction between local organizations; a structure of domination and/or patterns of coalition; and a mutual awareness of being involved in a common enterprise. A strong local institutional presence refers to the existence of a variety of different organizations such as groups of firms, financial bodies, governance organizations, unions, associations, and business service organizations. The second factor points to the importance of formal and informal knowledge exchange and cooperation among those organizations. Those interactions are often embedded in place-specific rules, norms, and conventions. A structure of domination is defined by the relative power and power base of different organizations. It is strongly influenced by their (access to) resources. Finally, the fourth factor is the “outcome” of the other three. Through strong presence, interactions, and a certain type of structure of dominations, the actors become aware that they are involved in a common enterprise; they have a common agenda which they develop and depend on.

Amin and Thrift (1994) have applied the concept to local and regional levels, such as the City of London or Silicon Valley, to explain why some locations are more successful than others in an increasingly globalized world. The authors relate thickness to legitimacy, trust, and stimulation of entrepreneurship, and argue that it “appears to have been central to the generation of success of neo-Marshallian modes in global networks” (p.15). However, it is also acknowledged that

institutional thickness may hinder the successful development of regions. This insight relates to a negative lock-in when previously successful institutions become outdated and hamper renewal and the establishment of new practices (Asheim 2000).

While many studies in economic geography have later been directed to investigate the institutional aspects of economic development, the research following Amin and Thrift's work has until now only led to a limited theoretical advancement of the original concept. Scholarly work has often settled for a short mention of institutional thickness when discussing or analyzing institutions in economic geography (Farole, Rodriguez-Pose, and Storper 2011; MacKinnon et al. 2009; Storper 1997; Beer and Lester 2015). Moreover, many of these studies have primarily focused on successful and well-known regions in developed economies (particularly in the EU). Gibbs et al. (2001), in analyzing the institutional capacity in a peripheral region, argue that the literature on institutional thickness has until now mainly focused on the presence of institutions while underestimating the efficiency of those institutions. Rodriguez-Pose (2013) suggests, too, that because of the role that informal institutions might play in development and the complex interrelations of institutions with a number of context-specific factors, assessing density may be not only difficult but also insufficient. Other scholars, such as Faulconbridge (2007), in analyzing the effect of institutional thickness on collective learning processes, also suggests investigating the efficiency (or what the author calls 'strength') of institutional thickness (as opposed to solely presence).

Although most of the studies on institutional thickness focus on the institutional conditions in specific regions, some more-recent contributions have underlined that in a globalized world

regional economic development may indeed be also influenced by factors external to the region (for example, by a productive structure that is dominated by externally controlled, foreign-owned establishments located in the region, institutions at higher spatial scales, and so on) (Fuller 2005; Gertler 2010; Fromhold-Eisebith 2002; Crescenzi, Rodríguez-Pose, and Storper 2012; Yeung 2009). The idea of a multi-scalar approach to institutional thickness (see also section 3) is supported by other authors. Jones and Clark (2000) advocate a refinement of institutional thickness by introducing the concepts of consensus institutions (informal) and concrete institutions (formal), as well as accounting for the role of individuals in changing institutions. Their analysis reveals the complexity of institutional thickness where institutions at different geographical levels contradict each other in their goals, while powerful actors in the region operate within this complexity and lead the process of transforming consensus institutions into concrete institutions. This suggests that the power of dominance also depends on the ability of actors to introduce new institutions which are binding on others. Beer and Lester (2015) add history of success in engaging with external political and administrative processes as one of the indicators for institutional thickness. According to the authors, such interaction is needed for regions to achieve higher growth rates since central governments often are important providers of resources. Furthermore, a successful interaction also points to well-developed institutional arrangements at the regional level.

MacLeod and his colleagues also criticize the original concept of institutional thickness for neglecting institutions at other geographical scales and for excluding the role of the state in the definition of institutional thickness. Drawing on neo-Gramscian state theory (MacLeod and Goodwin 1999) and on the Regulation Approach (MacLeod 2001), they highlight the importance

of regulative institutions and conscious decisions by the state in constructing and mediating institutional thickness at the regional level. They also warn that public support organizations promoting networking activities (which appear to be among the preferred units of analysis in studies of institutional thickness) will have little effect on regional development if not combined with renewed regulatory and industrial practices. While their work makes a valuable contribution to the use of new institutionalism in economic geography, their aim is not to reassess the concept of institutional thickness.

To summarize, over the past 20 years or so only few attempts have been made to re-assess and elaborate on the concept of institutional thickness. In a next step, we offer a brief review of the empirically oriented literature and of some methodological issues that have been raised in the scholarly debate on the notion.

2.2 Empirical applications and methodological challenges

Very seldom are all four factors of institutional thickness (as suggested by Amin and Thrift (1994)) explored in empirical applications of the concept. Among the few exceptions is the study by Henry and Pinch (2001), in which the four factors of institutional thickness are used as an analytical template to investigate the development of Britain's Motorsport Valley, highlighting in particular the importance of non-public organizations for economic development.

Our review of the empirical literature suggests that many analyses of institutional thickness focus on a rather narrow set of organizations, namely business support organizations and the roles and activities performed by them. Bassett et al. (2002), for instance, investigate institutional

thickness in Bristol's media cluster through an analysis of two types of support for companies: the festival and the development of formal, technical networks between local firms. Another good example is the contribution of Keeble et al. (1999) who have examined the level of institutional thickness in the Cambridge region through a survey of technology-intensive SMEs to assess support provided by the science park infrastructure and local services.

Drawing on single case studies appears to be the dominant method used in empirical applications of the concept. Studying single cases might provide valuable insights into the institutional structures of particular places. However, such an approach does not allow for validating tools for measuring institutional thickness that are more general in nature or applicable to different contexts. When a comparative approach has been applied, the analysis has only focused on some aspects of the institutional thickness of specific clusters and industries. Sydow and Staber (2002), through semi-structured interviews conducted in two "media regions" in Germany (Cologne/Düsseldorf and Berlin/Babelsberg), have compared the interaction structure among agents and dynamics in time and space of project networks at the regional scale. Faulconbridge (2007) has discussed institutional thickness in relation to collective learning, comparing advertising and law clusters in London and New York. Tödting et al. (2011), through a survey, have analyzed the ICT clusters in two Austrian regions (Vienna and Salzburg) and the spatial pattern of firms' knowledge links. In a similar vein, Chaminade and Plechero (2015) have empirically investigated the relation between regional institutional thickness and global innovation networks in developed and developing regions with a strong specialization in ICT. Whilst these studies have yielded valuable insights into some dimensions of institutional

thickness, they offer little inspiration for outlining the contours of a more comprehensive comparative approach that takes all aspects of the notion into account.

Some attempts to develop quantitative indicators (Coulson and Ferrario 2007; Ersoy 2011; Escobal and Ponce 2011; Beer and Lester 2015) can also be found in the literature. However, so far these attempts have mainly focused on measuring the presence of organizations in regions. The indicators used are very loosely related to the concept of institutional thickness and the efficiency dimension has only partly been addressed. A notable exception is the work by Coulson and Ferrario (2007), who have developed measures of all the factors that together form institutional thickness. However, their work also suffers from several shortcomings. Coulson and Ferrario (2007) reduce institutions to organizations and they do not discuss explicitly the relation between presence and efficiency. Furthermore, they do not suggest any indicators for classifying regions according to their degrees of institutional thickness.

3 Towards a redefinition of institutional thickness

Twenty years after the introduction of the notion in the literature, research on institutional thickness still shows ambiguities and limitations in terms of both the theoretical development of the concept and analytical operationalization. In this section, we identify some of the main issues and outline elements of a strategy that could help to redefine the concept.

3.1 Institutions or organizations?

As mentioned above, institutional thickness is associated with a strong local institutional presence. Amin and Thrift (1994) as well as many other scholars tend to equate institutional

presence with the existence of a *variety of different organizations* in the region. Indeed, scholarly work on institutional thickness conflates organizations and institutions (Coulson and Ferrario 2007) and does not discuss whether there is any difference between the two terms.

There is still no consensus in economic geography about the relation between organizations and institutions. This is particularly visible in the innovation systems literature, which considers institutions as eminently important for the development of regions or nations. Inspired by new institutional economics (North 1990), many authors define institutions as rules of the game which organizations (players) have to follow (Edquist and Johnson 1997; Asheim and Gertler 2005; Edquist 2005; Johnson 2010; Lundvall 2010). However, most of the empirical applications, especially in regional innovation systems research, focus on institutions as organizations (such as research bodies, governments, and venture capital organizations) rather than more broadly on the institutional environment (the legal system, norms, and so on) (Farole, Rodriguez-Pose, and Storper 2011). In other words, attention is given to the presence of various organizations, which would correspond to organizational rather than institutional thickness.

Some attempts to relate the notions of organizations and institutions have been made in innovation studies and the literature on the geography of innovation. Following organizational theorists (Meyer and Rowan 1977; DiMaggio and Powell 1983), Hollingsworth (2000, 619) suggests that “institutional rules, norms and conventions unfold in tandem with organizational structures” and therefore such an interrelated perception of institutions and organizations could be useful for an institutional analysis of innovation. This idea is also supported by Gertler and

Wolfe (2002), who perceive organizations as a part of (nested in) institutions in the form of rules, habits, and routines in their discussion on innovation and learning processes.

The notion of institutional thickness retains a similar conflation of organizations with institutions as shown above. According to Jessop (2001), when different organizations interact they generate a shared understanding, common agenda, and trust. Thus, in the analysis of institutional thickness, organizations are mechanisms via which institutions (such as trust, positive attitudes to learning, and knowledge exchange) are created and mediated (Raco 1999; Faulconbridge 2007). A critical mass of actors is needed to both create and enact institutions (Zukauskaitė 2013) since too little organizational presence might hamper the successful development of regional economies (Tödtling and Trippel 2005). Such a conflation, although it might be conceptually explained, may also have some limitations. First, there is a risk that institutional thickness will simply be equated with a large number of organizations, especially public and quasi-public support organizations (Henry and Pinch 2001). Second, the fact that organizations *might* become mechanisms for creating institutions does not mean that they by definition *do* that (Raco 1999). Although organizations might be created relatively quickly and easily (with enough resources at hand one can establish support organizations, research and education bodies, etc.), it might take a much longer time to develop institutions since institutional change is often slow and incremental (Mahoney and Thelen 2010). Third, institutional thickness might have dimensions other than organizational thickness (MacLeod 2001). For example, normative institutions in the region might support collective learning and knowledge exchange among actors without formal associations or other support organizations promoting such activities. Such norms might emerge through democratic values which are often enacted at local and regional levels (Amin and Thrift

1995). There are thus some compelling reasons for analytically separating organizational and institutional thickness.

Towards an analytical distinction between institutional and organizational thickness

Mapping institutions and organizations as separate entities would provide a more fine-grained analysis of factors underpinning regional development since it would allow for a more precise identification of the strengths and weaknesses of the specific context under analysis. Adopting such a strategy might, for example, help to establish greater clarity and specification of the factors hampering regional development: are they related to the lack of particular organizations or are they an outcome of missing, inappropriate or contradicting institutions? Furthermore, such a distinction would also direct attention to the nature of the relation between institutional and organizational thickness. For example, the establishment of new organizations that provide support for networking activities in the region might be the result of specific institutions already in place (openness for knowledge sharing, trust, and willingness to learn from others, and so on), and it might foster the further development of such institutions, but it might instead have no effect if actors are reluctant to get involved in such activities or, possibly, are not even aware of the existence of such organizations (see, for instance, Martin, Moodysson, and Zukauskaitė 2011). In other words: an increase of organizational thickness (at least in terms of efficiency) might increase institutional thickness or not have any impact at all. The arguments raised above could provoke a set of new questions that might be addressed in future research. When and how (if at all) does organizational thickness contribute to the development of institutional thickness? What are the mechanisms for creating institutional thickness in places that suffer from a lack of well-functioning organizations?

The possibility of differentiating between institutions and organizations is closely related to the issue of finding indicators for measuring these two aspects with regard to presence and efficiency. The differentiation is also crucial for assessing on what basis the region can be labeled as thick or thin. To elaborate extensively on the methodological operationalization of the concept is beyond the scope of this paper, though some suggestions can be made.

First, we argue for a broad understanding of organizations when discussing the notion of *organizational thickness*. In contrast to many studies, which have mainly focused on business and innovation support organizations, we see considerable value in taking account of the role played by a larger variety of organizations. Indeed, actors other than support organizations might be equally or even more important in affecting regional development (Henry and Pinch 2001). It is therefore relevant to include firms and to take account of the structure of different industries and the relation between large and small firms. Furthermore, due attention should also be given to research and education organizations in analyses of organizational thickness. Industrial diversity, the combination of large and small firms, and the presence of research and educational bodies can provide some significant indications for the organizational efficiency of the region. Regions with diversified industrial structures and hosting well-performing research and education organizations are more likely to be innovative and show a strong performance of economic development (Isaksen and Trippel 2014). In addition, the efficiency of the firms could be assessed by looking into turnovers, introduction of innovations, expenditure on innovation, and, as suggested by Beer and Lester (2015), the level and type of education of employees. The efficiency of research and education organizations might be assessed by employing indicators

used in university rankings, or in more qualitative ways, by investigating how these organizations are perceived by other stakeholders in the region. The perception by other actors, together with information about funds obtained for the development of the region, can help to assess the efficiency of governmental and support organizations (Beer and Lester 2015).

We suggest defining institutions as rules of the games including formal and informal rules such as regulations, laws, values, norms and attitudes (North 1990; Scott 2008) when discussing the notion of *institutional thickness*. Some tools for assessing particular aspects of institutions defined in such a way are already available. The Global Competitiveness Index and the Worldwide Governance Indicators are instruments to measure and compare, for example, the level of corruption, the quality of governance, attitudes toward collaboration, and knowledge exchange. They might be complemented by other indicators which could be developed for a concrete case region or for aspects and comparison not already covered by the available national and regional data.

To sum up, we consider institutional thickness to be related to regulations, norms, values and attitudes and organizational thickness to be related to firms, universities, governmental agencies, support and other organizations. The original concept of institutional thickness covers both aspects, which are clearly distinguished from each other and referred to as organizational and institutional thickness in this paper.

3.2 Institutional and organizational thickness: statics or dynamics?

Many studies provide snapshots of organizational and/or institutional thickness. However, the institutional and organizational structures (presence and efficiency of institutions and organizations, and the relations between different types of institutions and between different types of organizations) of the region often change over time, making a static analysis ill-suited to grasping their evolution (Gertler 2010; Rodríguez-Pose 2013).

The question of how institutional thickness evolves is still poorly understood. Jones and Clark (2000) suggest analyzing institutional thickness as a process rather than a stable result. However, they do not provide any tools for investigating changes in the four constitutive elements of the original notion of thickness. Instead of conceptualizing the dynamics and evolution of thickness, the concept is applied as a meta-term for institutional analysis. Jones and Clark (2000) focus on consensus and concrete institutions and seek to explain institutional change by studying how informal patterns develop into formal rules.

Analyzing changes of institutional thickness over time is a challenging task. One difficulty concerns the direction of causality between thickness and the phenomenon under study (Coulson and Ferrario 2007). Arguably, the problem of causality is not confined to the debate on institutional thickness. It is a frequent phenomenon in institutional analysis in economic geography and other disciplines. Maskell and Malmberg (2007) point out that institutions are often measured by their outcomes (that is, activities) which lead to circular arguments: the territories that perform well are equipped with a well-functioning institutional structure, while a well-functioning institutional structure is found in the territories that perform well. Farole,

Rodriguez-Pose, and Storper (2011, 73) claim that the relation between institutions and economic growth is endogenous:

Institutions and economic growth co-evolve with changes in capacity building and improvements in governance contributing to the development of economic activity and vice versa.

It is also important to bear in mind that institutions do not exist outside a specific context of actions (Jessop 2001). Actions are shaped by specific institutional structures, while at the same time actors have some freedom of choice and, therefore, can reflect upon and change institutions (see also Hollingsworth 2000; Hodgson 2003). However, institutional change is slow and incremental (Mahoney and Thelen 2010). Thus, in the short term, activities are most likely to be an outcome of the institutional structures, while in the long term the impact of activities on institutions can be identified. For example, Phillips et al. (2015) argue that initially organizations and individuals depend on institutions for an efficient distribution of knowledge; as knowledge accumulates, organizations start to outpace the institutional structures, possibly leading to changes in the institutions themselves. Furthermore, although the relation between institutions and activities is endogenous, it is still worth analyzing how, when, and which institutions influence different social phenomena in order to gain a better understanding of their development (Farole, Rodriguez-Pose, and Storper 2011). Finally, if changes in institutions can be clearly identified (for example, a change in a particular regulation), a time lag between the change in institutions and activities under investigation could be introduced in empirical analyses to address the issue of endogeneity (Srholec 2010; Goedhuys and Srholec 2015).

Towards a dynamic view on institutional and organizational thickness

In order to analyze how institutional and organizational thickness evolves over time, we need to gain a better understanding of the processes and mechanisms of institutional and organizational change. Gertler (2010) suggests adapting the theoretical advancement made in historical institutionalism, or, more concretely, the work done by Thelen and her colleagues, to the regional analysis of institutions. In this stream of literature, it is highlighted that institutions do not emerge or decline overnight, but rather develop in a subtle, gradual process (Mahoney and Thelen 2010). At the same time, there are strong reasons to assume that the pace and direction of institutional change may differ markedly across regions. In places situated in developing economies, institutional change could be expected to take place at a faster rate and being of a more unpredictable nature than in areas located in developed countries (Wei, Li, and Wang 2007; Peng, Wang, and Jiang 2008; Gao et al. 2010).

The literature offers various typologies to categorize different forms of institutional change. Hall and Thelen (2009) argue that institutional change might happen through reform (when government itself directs and endorses change), defection (when key actors withdraw from organizations or no longer follow their rules), and reinterpretation (when actors gradually change their interpretation of the rules without defecting or dismantling the institution itself). However, this typology does not cover situations where new rules are created in combination with old ones or where old rules are totally abolished. More recently, Mahoney and Thelen (2010, 15) have introduced four modes of institutional change: displacement (the removal of existing rules and the introduction of new ones); layering (the introduction of new rules on the top or alongside of

existing ones); drift (the changed impact of existing rules due to shifts in the environment); and conversion (the changed enactment of existing rules due to their strategic deployment). Campbell (2006, 506) adds the notions of bricolage (new combinations of existing institutions) and translation (when a new type of institution arrives at a location, it is modified (translated) in order to fit the already-existing framework). These different typologies point to a variety of ways by which institutional change might happen and could offer novel insights into the evolution of institutional thickness and the forms and directions it might take. It would be intriguing to explore in future studies if particular types of institutional change are more likely to be observed in some regions than in others. One could expect that layering and translation are common forms of change in institutionally thin regions, while displacement and conversion are more likely to take place in regions with thick but hampering institutions. Future studies could also benefit from incorporating insights from the institutional entrepreneurship literature (Battilana, Leca, and Boxenbaum 2009) to explore under which conditions and in what ways key individuals and organizations (or groups of them) influence how institutional thickness changes over time.

Some recent developments in evolutionary economic geography provide frameworks for analyzing changes in organizational thickness, offering explanations of how new firms and industries emerge in regions. For example, the notion of regional branching sheds light on how old industries diversify into new but related ones (Boschma and Frenken 2011). Other scholars (Martin and Sunley 2006; Trippel and Otto 2009; Isaksen and Trippel 2014; Dawley et al. 2015) have distinguished between a broader set of types of regional industrial change, ranging from path extension and upgrading, to path transplantation, and the rise of entirely new growth paths.

Future studies could investigate how these different types of path development are related to and reflected in changes of the organizational thickness of regions.

3.3 Spatial dimension of institutional and organizational thickness

As noted above, a common criticism levied against the original concept of institutional thickness is the neglect of a multi-scalar perspective (Macleod and Goodwin 1999; MacLeod 2001; Jones and Clark 2000). The importance of adopting a multi-scalar approach in institutional analyses of regional development has been acknowledged by many scholars (see also section 2). Already Martin (1994) has pointed out that regions are places where different institutions—local, regional, and national—meet.

The argument that it is eminently important to take the interrelatedness between institutions into explicit account has become prominent in recent years. Advocates of the geography of production approach have highlighted the complex institutional structures and power relations among firms and other organizations that exist at different geographical levels and how they shape spatial and social dynamics of development (Dicken et al. 2001; Henderson et al. 2002; Coe et al. 2004). Interaction among actors is one of the key factors influencing institutional thickness. Several studies on knowledge, production, and innovation networks suggest that such linkages often transcend regional (and national) borders. Consequently, an exclusive focus on local and regional networks does not suffice to explain the complex geography of interaction patterns (Tödtling 1999; Martin and Moodysson 2013).

Gertler (2010) stresses the importance of institutions at local, national and global levels for understanding regional economic change. Also, Asheim et al. (2011), in their analysis of regional innovation systems, highlight the embeddedness of regions in national and global settings. Farole et al. (2011) emphasize that a balance between society (formal) institutions (mainly found at the national level) and community (informal) institutions (mainly found at the local and regional levels) is conducive to economic growth.

To fully account for organizational and institutional thickness in the region, national and global factors and influences must therefore be taken into account. Henry and Pinch (2001) underline that the growth of Motorsport Valley benefits from previous state investments in the aircraft industry (national-level policy decisions). According to Macleod and Goodwin (1999, 514), national-level policy that influences “the operation of those trying to construct an appropriate institutional thickness at a local or regional scale” should deserve due attention.¹

Eventually, taking other geographical scales into account becomes especially relevant in comparative analyses. For example, because of different national policies, the regions in different countries are subject to different levels of decentralization (Macleod and Goodwin 1999) which in turn shapes the possibilities for regional policy makers to influence regional development strategies, support innovation activities, and align diverse interests towards a common agenda for the region (Cooke 2001; Dawley 2014; Dawley et al. 2015; Isaksen and Trippel Forthcoming).

¹ As mentioned earlier, MacLeod and his colleagues have made some efforts to introduce a multi-scalar perspective into the analysis of institutional thickness. However, similarly to Jones and Clark’s (2000) study, rather than conceptually integrating different concepts, the authors discuss alternative frameworks (Regulation Approach, neo-Gramscian state theory) as a response to the shortcomings of the institutional thickness framework.

Towards a multi-scalar approach to institutional and organizational thickness

Incorporating a multi-scalar perspective into the conceptualization of institutional thickness requires a revision of notion in theoretical and analytical terms. Since regional development processes are influenced by institutions at different spatial scales, it is important to understand how those institutions are related to each other. According to Zukauskaitė (2015) institutions can be related in a complementary, reinforcing, or contradictory manner. More concretely, institutions have different functions and incentives. Regulatory frameworks set rules and monitor and sanction activities. Norms and values introduce prescriptive, evaluative, and obligatory dimensions into social life. They prescribe how things should be done and might be applicable to all members or just specific individuals of a certain collectivity (society, community, industry, and so on) (Scott 2008). While performing these functions, institutions create different incentives. For example, intellectual property rights create an incentive to invest in knowledge creation and innovation (Edquist and Johnson 1997). Institutions are contradicting when they provide different incentives. They are reinforcing when they provide similar incentives via similar functions. They are complementary when they create similar incentives via different functions. Analyzing the relation between different institutions would provide a better overview of the institutional presence in the region, and would help to identify at which level supporting and hampering institutions are scaled.

Firms and other organizations operating at levels other than the local and regional ones (MNCs, national and international funding and innovation agencies, industry organizations, and so on) also have an impact on the development of organizational thickness and on the activities of the

actors in the region. Paying attention to the importance of non-local actors and trans-local networks for organizational thickness is particularly relevant when investigating regions which base their development more on exogenous sources such as peripheral areas in developed countries (Dawley 2014; Dawley et al. 2015; Isaksen and Trippel Forthcoming) and regions in emerging economies (Yeung 2009; Fu, Pietrobelli, and Soete 2011). The networks of actors located in these areas often cross regional and national boundaries to take advantage of well-functioning institutional environments and organizations elsewhere. Social-network analysis could provide valuable insights into the multi-scalar dimension of organizational thickness.

Arguably, the empirical execution of a study in which several geographical scales are taken into account might become very complex, particularly when investigating the institutional dimension of thickness. However, it should also be noted that not all institutions are equally important for regional development and innovation (Macleod and Goodwin 1999). Thus, identifying the most vital ones for consideration in empirical analyses might be a feasible strategy. For example, when analyzing the impact of thickness on innovation activities, relevant institutions at the national level could be funding schemes for innovation, tax policies related to innovation (such as tax reliefs), or national innovation policies/strategies. Focusing on organizational thickness, studies might restrict themselves to taking only the most important organizations at the national or international level into account (such as powerful governmental agencies responsible for innovation or highly ranked research and education organizations with connections to regional actors). The decision about what to include or exclude from the analysis will depend on the research question and the specific phenomenon that is investigated.

3.4 Institutional and organizational thickness or thinness?

In the analysis of organizational and institutional thickness, one of the key issues to address is how to distinguish between thick and thin structures. This is a challenging endeavor. Many of the intangible elements that compose the institutional and organizational thickness – such as the regional structure of domination and/or patterns of coalition, and the mutual awareness of being involved in a common enterprise – make it difficult to develop objective classifications (Rodríguez-Pose 2013; Chaminade and Plechero 2015). Moreover, it remains unclear how much variety in organizational and institutional presence, interactions, and commonness in the agenda there has to be for the region to qualify as thick. What is the relation between the presence and efficiency of organizations and institutions? Although, as mentioned above, there have been several attempts to develop indicators for efficiency (Coulson and Ferrario 2007; Beer and Lester 2015), the relation between presence and efficiency and the basis for calling a region thick remains vague.

Towards an assessment of institutional and organizational thickness in relative terms

There have been attempts in the regional innovation systems literature to develop indicators for ideal-type cases of organizationally thick or thin regions. Isaksen and Trippel (2014), for instance, differentiate between thick and diversified, thick and specialized, and thin regions. Thick and diversified regions host a large number of different industries as well as a variety of knowledge and support organizations and they often benefit from intensive local and non-local networking. Organizationally thick and specialized regions are characterized by the presence of one or a few industries only, a highly specialized organizational support structure and a lower degree of non-local networking activities. Organizationally thin regions suffer from weakly developed cluster

structures and are often poorly endowed with research, education and business support organizations. This typology provides some useful indicators for discussing organizational thickness, not only in terms of presence but also in terms of efficiency. It is applicable when analyzing real-life examples which closely mirror the ideal cases described above.

Discussing organizational and institutional thickness in absolute terms is rather tricky. Is there any minimum number of firms and support organizations which must be located in the region for a place to qualify as thick? How much trust or how many interactions must there be? How well-developed must the intellectual property rights and other laws and regulations be? The fact that thickness may be time- and space-contingent (Jessop 2001) suggests that thickness can be best determined in relative terms using comparative studies that analyze several regions at the same time or the same location at different points in time. Thus, one region can be thicker or thinner in relation to other regions or it might have become thicker and thinner compared to its own previous states of development. This calls for a need to employ more comparative and longitudinal studies in future research.

When analyzing thickness, it is important to deal with the question ‘*thick for what?*’. Amin and Thrift (1994) discuss thickness in relation to general economic development. However, in further applications, thickness is discussed with regard to a concrete industry in the region (for example, motor industry, watch industry, or ICT industry), to collective learning activities (Glasmeier 1994; Henry and Pinch 2001; Faulconbridge 2007), or to innovation or global innovation networks (Tödting, Lengauer, and Höglinger 2011; Chaminade and Plechero 2015). These are of course empirical decisions that depend on concrete research questions. However, making

these decisions explicit in the analytical framework might help to avoid ambiguity regarding, for example, different positive or negative effects of thickness in relation to different phenomena but also in relation to the specific organizational and institutional settings of a region. Opposite to relatively thick institutional and organizational structures supporting regional development and innovation is either a relatively thin infrastructure (lack of organizations and institutions, lack of common vision, few interactions) or a thick infrastructure, characterized by inappropriate organizations and institutions which hamper regional development and innovation (imbalanced power of dominance, joint vision opposing any renewal efforts, closed networks (old boys networks, inward looking networks), and so on). Organizationally thin peripheral regions are typical examples of the former, while locked-in old industrial regions are classical examples of the latter, where existing institutions and organizations hamper possibilities for economic rejuvenation (Tödting and Trippel 2005). To summarize, organizational thickness and institutional thickness do not bring per se advantages or disadvantages for regional development. Indeed, thickness has to be related to the concrete phenomenon on which it might have either a positive or a negative impact. Future studies could address these issues more explicitly to enhance one's understanding of which organizations and institutions support and which ones hinder development and how such processes differ across regions with thick and thin structures.

3.5 Summary: Redefining the constitutive elements of the original concept

The arguments raised in the previous subsections can essentially enrich the discussion about the four constitutive elements of the original concept of institutional thickness (Table 1). What follows is an attempt to offer some brief thoughts on this issue.

Strong institutional and organizational presence. Distinguishing between organizations and institutions, as well as considering not only the mere presence but also the efficiency of organizations and institutions, would provide a more differentiated picture of the strengths and weaknesses of a given region. In addition, capturing dynamic and multi-scalar effects by analyzing how organizations and institutions at different spatial scales evolve over time and to what extent and in which ways they adapt to industrial and technological change could lead to a more advanced assessment of organizational and institutional thickness.

High levels of interaction. Regional development is not only shaped by interactions among local actors, but also between local actors and non-local actors. Consequently, analyses of the organizational network for the specific case under consideration should include not only regional but also national and global actors and the evolution/co-evolution of those interactions over time.

Structure of domination. Power lies within both institutions and organizations. Valuable insights might be gained by examining at which scale important institutions are introduced and enacted, which organizations at which geographical level have most power to influence regional development, and to what extent, how and why power balance is changing over time.

Common agenda. While organizations play a vital role in setting the common agenda, institutions establish the conditions that support (or not) the agenda. Applying a dynamic and/or multi-scalar approach would allow to study how the common agenda evolves over time and to explore how non-local organizations influence regional agendas.

Assessing the four constitutive elements of thickness in absolute terms is a difficult endeavor. As mentioned above, a comparative approach may yield valuable insights. A careful analysis and comparison of each of the four factors might have the potential to uncover relative strengths and weaknesses of the regions under investigation. For example, one region could be thicker in terms of organizational and institutional presence and levels of interactions, while another region could have a more balanced structure of domination and a higher degree of commonness in its agenda.

Table 1: Strategies for redefining the four factors of thickness

Strategies	Strong presence	High levels of interaction	Structure of domination	Common agenda
Distinguishing between organizations and institutions	Identification of strengths and weaknesses of the region in relation to presence and efficiency of organizations and institutions	Clear focus on interactions between organizations	Identification of the role of relevant institutions and power relations between different organizations	Identification of organizations which play a role in setting the agenda; role of institutions in the development and acceptance of a common agenda
Multi-scalar approach	Identification of key organizations and institutions at different scales (and their interrelatedness) affecting the phenomenon under study	Identification of regional and extra-regional networks	Identification of the scale at which influential and relevant institutions are introduced and enacted	Accounting for the role played by organizations and institutions at other levels in agenda setting
Dynamic perspective	Understanding changes of presence and efficiency of institutions and organizations over time	Grasping the evolution/co-evolution of interactions over time	Understanding changes of power relations over time	Enhancing knowledge about the development of a common agenda over time
Thick versus thin	Assessing strengths and weaknesses of organizations and institutions (presence and efficiency) in relative terms	Assessing levels of interaction in relative terms	Assessing power of dominance in relative terms	Assessing degrees of commonness in relative terms

Source: Own elaboration

4 Conclusions

Over the past 20 years, the notion of institutional thickness has been widely invoked by scholars working in the field of economic geography, innovation studies, and related disciplines. The concept directs attention to a set of place-specific factors (that is, institutional presence; interaction patterns; structure of domination and/or patterns of coalition-building; and a mutual awareness of being involved in a common enterprise) and highlights how specific combinations of these factors shape regional economic development.

Although the literature on institutional thickness has to be acknowledged for sharpening our view of how institutions and organizations promote or hinder regional development, there are also limitations and criticisms that have to be leveled against it. Based on a literature review of conceptual and empirical work, as well as a systematic account of major shortcomings and unresolved problems, several elements of a strategy that could advance the debate on institutional thickness have been identified.

First, we argued for an analytical differentiation between institutional and organizational thickness. Such a distinction lays the foundation for a more fine-grained analysis of the strengths and weaknesses of the context under consideration and provokes some fundamental questions about the complex relationship between the organizational and institutional dimensions of thickness. Second, it was claimed that much could be gained by developing a dynamic perspective, providing insights into how organizational and institutional thickness evolve over time and adapt to changing context conditions and circumstances. Third, we emphasized the need for a multi-scalar approach that puts due emphasis on how regional development

trajectories are shaped by the interplay of organizations and institutions at various geographical levels, from the local/regional, to the national, to the global. Fourth, we advanced the idea that the degree of organizational and institutional thickness should not be assessed in absolute but in relative terms, calling for more longitudinal and comparative studies in the future.

Arguably, it was far beyond the scope of this paper to offer a comprehensive re-conceptualization of the notion of institutional thickness or to map out a detailed research agenda. Instead, we have highlighted some promising directions that future research may take and we have discussed some conceptual and methodological challenges that are associated with such an endeavor. The strategies and ideas sketched in this paper may not only contribute to a redefinition of the original concept and its four constitutive elements. They could also enrich economic geography more broadly by informing attempts that are currently underway to revive and strengthen institutional perspectives within the discipline (see, for instance, Gertler 2010; Rodríguez-Pose 2013). Furthermore, they could essentially inform the recent debate on forms and mechanisms of regional industrial change, which has thus far underappreciated the role of territorial institutions in shaping such processes. Building on an advanced understanding of institutional (and organizational) thickness could help foreground this role, providing additional levels of explanation of regional industrial change than that offered by evolutionary economic geography.

References

- Amin, A. and N. Thrift. 1994. Living in the Global. In *Globalization, Institutions, and Regional Development in Europe*, ed. A. Amin and N. Thrift. Oxford: Oxford University Press
- . 1995. Institutional Issues for the European Regions: From Markets and Plans to Socioeconomics and Powers of Association. *Economy and Society* 24:41-66.
- Asheim, B. 2000. Industrial Districts: The Contributions of Marshall and Beyond. In *The Oxford Handbook of Economic Geography*, ed. G.L. Clark; M.P. Feldman; and M.S. Gertler, 413-431. Oxford New York: Oxford University Press.
- Asheim, B. and M.S. Gertler. 2005. The Geography of Innovation: Regional Innovation Systems. In *The Oxford Handbook of Innovation* ed. J. Fagerberg; D.S. Mowery; and R.R. Nelson, 291-317. Oxford New York: Oxford University Press.
- Asheim, B.; H.L. Smith; and C. Oughton. 2011. Regional Innovation Systems: Theory, Empirics and Policy. *Regional Studies* 45:875-891.
- Bassett, K.; R. Griffiths; and I. Smith. 2002. Cultural industries, cultural clusters and the city: the example of natural history film-making in Bristol. *Geoforum* 33:165-177.
- Battilana, J.; B. Leca; and E. Boxenbaum. 2009. 2 how actors change institutions: towards a theory of institutional entrepreneurship. *The academy of management annals* 3:65-107.
- Beer, A. and L. Lester. 2015. Institutional Thickness and Institutional Effectiveness: Developing Regional Indices for Policy and Practice in Australia. *Regional Studies, Regional Science* 2:204-227.
- Boschma, R. and K. Frenken. 2011. The emerging empirics of evolutionary economic geography. *Journal of Economic Geography* 11:295-307.
- Campbell, J.L. 2006. What's New? General Patterns of Planned Macro-institutional Change. In *Innovation, Science, and Institutional Change*, ed. J. Hage and M. Meeus, 505-524. Oxford New York: Oxford University Press.
- Chaminade, C. and M. Plechero. 2015. Do regions make a difference? Regional innovation systems and global innovation networks in the ICT industry. *European Planning Studies* 23:215-237.
- Coe, N.M.; M. Hess; H.W.c. Yeung; P. Dicken; and J. Henderson. 2004. 'Globalizing' regional development: a global production networks perspective. *Transactions of the Institute of British Geographers* 29:468-484.
- Cooke, P. 2001. Regional Innovation Systems, Clusters, and the Knowledge Economy. *Industrial and Corporate Change* 10:945-974.
- Coulson, A. and C. Ferrario. 2007. 'Institutional Thickness': Local Governance and Economic Development in Birmingham, England. *International Journal of Urban and Regional Research* 31:591-615.
- Crescenzi, R.; A. Rodríguez-Pose; and M. Storper. 2012. The territorial dynamics of innovation in China and India. *Journal of Economic Geography* 12:1055-1085.
- Dawley, S. 2014. Creating new paths? Offshore wind, policy activism, and peripheral region development. *Economic Geography* 90:90-112.
- Dawley, S.; D. MacKinnon; A. Cumbers; and A. Pike. 2015. Policy activism and regional path creation: the promotion of offshore wind in North East England and Scotland. *Cambridge Journal of Regions, Economy and Society*:rsu036.
- Dicken, P.; P.F. Kelly; K. Olds; and H. Wai-Chung Yeung. 2001. Chains and networks, territories and scales: towards a relational framework for analysing the global economy. *Global networks* 1:89-112.

- DiMaggio, P.J. and W.W. Powell. 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review* 48:147-160.
- Edquist, C. 2005. Systems of Innovations: Perspectives and Challenges. In *The Oxford Handbook of Innovation*, ed. J. Fagerberg; D.C. Mowery; and R.R. Nelson, 181-208. Oxford New York: Oxford University Press.
- Edquist, C. and B. Johnson. 1997. Institutions and Organizations in Systems of Innovations. In *Systems of Innovations: Technologies, Institutions and Organizations*, ed. C. Edquist, 41-63. London and Washington: Pinter.
- Ersoy, A. 2011. Assessment of institutional thickness in the Turkish context. *African Journal of Business Management* 5:12206-12211.
- Escobal, J.A. and C. Ponce. 2011. Access to public infrastructure, institutional thickness and pro-poor growth in Rural Peru. *Journal of International Development* 23:358-379.
- Farole, T.; A. Rodriguez-Pose; and M. Storper. 2011. Human Geography and the Institutions that Underlie Economic Growth. *Progress in Human Geography* 35:58-80.
- Faulconbridge, J.R. 2007. Exploring the role of professional associations in collective learning in London and New York's advertising and law professional service firm clusters. *Environment and Planning A* 39:965-984.
- Fromhold-Eisebith, M. 2002. Regional cycles of learning: foreign multinationals as agents of technological upgrading in less developed countries. *Environment and Planning A* 34:2155-2174.
- Fu, X.; C. Pietrobelli; and L. Soete. 2011. The role of foreign technology and indigenous innovation in the emerging economies: technological change and catching-up. *World Development* 39:1204-1212.
- Fuller, C. 2005. Corporate Repeat Investment and Regional Institutional Capacity The Case of After-Care Services in Wales. *European Urban and Regional Studies* 12:5-21.
- Gao, X.; X. Guo; K.J. Sylvan; and J. Guan. 2010. The Chinese innovation system during economic transition: A scale-independent view. *Journal of Informetrics* 4:618-628.
- Gertler, M.S. 2010. Rules of the Game: The Place of Institutions in Regional Economic Change. *Regional Studies* 44:1-15.
- Gertler, M.S. and D.A. Wolfe. 2002. Innovation and Social Learning: An Introduction. In *Innovation and Social Learning: Institutional Adaptation in an Era of Technological Change*, ed. M.S. Gertler and D.A. Wolfe, 1-24. New York: Palgrave Macmillan.
- Gibbs, D.C.; A.E. Jonas; S. Reimer; and D.J. Spooner. 2001. Governance, institutional capacity and partnerships in local economic development: theoretical issues and empirical evidence from the Humber Sub-region. *Transactions of the Institute of British Geographers* 26:103-119.
- Glasmeier, A. 1994. Flexible Districts, Flexible Regions? The Institutional and Cultural Limits to Districts in an Era of Globalization and Technological Paradigm Shifts. In *Globalization, Institutions, and Regional Development in Europe*, ed. A. Amin and N. Thrift, 118-146. Oxford: Oxford University Press.
- Goedhuys, M. and M. Srholec. 2015. Technological Capabilities, Institutions and Firm Productivity: A Multilevel Study. *European Journal of Development Research* 27:122-139.
- Hall, P.A. and K. Thelen. 2009. Institutional Change in Varieties of Capitalism. *Socio-Economic Review* 7:7-34.
- Henderson, J.; P. Dicken; M. Hess; N. Coe; and H.W.-C. Yeung. 2002. Global production networks and the analysis of economic development. *Review of International Political Economy* 9:436-464.
- Henry, N. and S. Pinch. 2001. Neo-Marshallian Nodes, Institutional Thickness, and Britain's 'Motor Sport Valley': Thick or Thin? *Environment and Planning A* 33:1169 -1183.

- Hodgson, G.M. 2003. The hidden persuaders: institutions and individuals in economic theory. *Cambridge Journal of Economics* 27:159-175.
- Hollingsworth, J.R. 2000. Doing Institutional Analysis: Implications for the Study of Innovations. *Review of International Political Economy* 7:595-644.
- Isaksen, A. and M. Tripp. 2014. Title. Papers in Innovation Studies No 2014/17, CIRCLE, Lund University, Lund.
- . Forthcoming. Exogeneously led and policy supported new path development in peripheral regions: analytical and synthetic routes. *Economic Geography*.
- Jessop, B. 2001. Institutional re (turns) and the strategic-relational approach. *Environment and Planning A* 33:1213-1236.
- Johnson, B. 2010. Institutional Learning. In *National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning*, ed. B.-Å. Lundvall. London: Anthem Press.
- Jones, A. and J. Clark. 2000. Of vines and policy vignettes: sectoral evolution and institutional thickness in the Languedoc. *Transactions of the Institute of British Geographers* 25:333-357.
- Keeble, D.; C. Lawson; B. Moore; and F. Wilkinson. 1999. Collective learning processes, networking and 'institutional thickness' in the Cambridge region. *Regional Studies* 33:319-332.
- Lundvall, B.-Å. 2010. Introduction. In *National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning*, ed. B.-Å. Lundvall, 1-19. London/ New York: Anthem Press.
- MacKinnon, D.; A. Cumbers; A. Pike; K. Birch; and R. McMaster. 2009. Evolution in Economic Geography: Institutions, Political Economy, and Adaptation. *Economic Geography* 85:129-150.
- MacLeod, G. 2001. Beyond soft institutionalism: accumulation, regulation, and their geographical fixes. *Environment and Planning A* 33:1145-1168.
- Macleod, G. and M. Goodwin. 1999. Space, scale and state strategy: rethinking urban and regional governance. *Progress in Human Geography* 23:503-527.
- Mahoney, J. and K. Thelen. 2010. A Theory of Gradual Institutional Change. In *Explaining Institutional Change: Ambiguity, Agency, and Power*, ed. J. Mahoney and K. Thelen, 1-37. Cambridge New York: Cambridge University Press.
- Martin, R. 1994. Economic Theory and Human Geography. In *Human Geography: Society, Space and Social Science*, ed. R. Martin and G. Smith, 21-53. Basingstoke: Macmillan.
- . 2000. Institutional Approaches in Economic Geography. In *A Companion to Economic Geography*, ed. E. Sheppard and T.J. Barnes, 77-96. Oxford: Blackwell.
- Martin, R. and J. Moodysson. 2013. Comparing Knowledge Bases: On the Geography and Organization of Knowledge Sourcing in the Regional Innovation System of Scania, Sweden. *European Urban and Regional Studies* 20:170-187.
- Martin, R.; J. Moodysson; and E. Zukauskaitė. 2011. Regional innovation policy beyond 'best practice': Lessons from Sweden. *Journal of the Knowledge Economy* 2:550-568.
- Martin, R. and P. Sunley. 2006. Path dependence and regional economic evolution. *Journal of Economic Geography* 6:395-437.
- Maskell, P. and A. Malmberg. 2007. Myopia, knowledge development and cluster evolution. *Journal of Economic Geography* 7:603-618.
- Meyer, J.W. and B. Rowan. 1977. Institutionalized Organization: Formal Structure as Myth and Ceremony. *American Journal of Sociology* 83:340-363.
- North, D. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Peng, M.W.; D.Y. Wang; and Y. Jiang. 2008. An institution-based view of international business strategy: A focus on emerging economies. *Journal of international business studies* 39:920-936.

- Phillips, W.; H. Lee; A. Ghobadian; N. O'Regan; and P. James. 2015. Social Innovation and Social Entrepreneurship A Systematic Review. *Group & Organization Management* 40:428-461.
- Raco, M. 1999. Competition, collaboration and the new industrial districts: examining the institutional turn in local economic development. *Urban studies* 36:951-968.
- Rodríguez-Pose, A. 2013. Do institutions matter for regional development? *Regional Studies* 47:1034-1047.
- Scott, W.R. 2008. *Institutions and Organizations*. London: Sage Publications.
- Srholec, M. 2010. A multilevel approach to geography of innovation. *Regional Studies* 44:1207-1220.
- Storper, M. 1997. *The Regional World*. New York London: The Guilford Press.
- Sydow, J. and U. Staber. 2002. The institutional embeddedness of project networks: the case of content production in German television. *Regional Studies* 36:215-227.
- Tödting, F. 1999. Innovation networks, collective learning, and industrial policy in regions of Europe.
- Tödting, F.; L. Lengauer; and C. Höglinger. 2011. Knowledge Sourcing and Innovation in 'Thick' and 'Thin' Regional Innovation Systems-Comparing ICT Firms in Two Austrian Regions. *European Planning Studies* 19:1245-1276.
- Tödting, F. and M. Tripl. 2005. One Size Fits All? Towards a Differentiated Regional Innovation Policy Approach. *Research Policy* 34:1203-1219.
- Tripl, M. and A. Otto. 2009. How to turn the fate of old industrial areas: A comparison of cluster-based renewal process in Styria and the Saarland. *Environment and Planning A* 41:1217-1233.
- Wei, Y.D.; W. Li; and C. Wang. 2007. Restructuring industrial districts, scaling up regional development: a study of the Wenzhou model, China. *Economic Geography* 83:421-444.
- Yeung, H.W.-c. 2009. Regional development and the competitive dynamics of global production networks: an East Asian perspective. *Regional Studies* 43:325-351.
- Zukauskaitė, E. 2013. *Institutions and the Geography of Innovation: A Regional Perspective*. Lund: Lund University.
- . 2015. Organizational change within medical research in Sweden: on the role of the individuals and institutions. *Environment and Planning C: Government and Policy* 33:1190-1206.