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Operationalizing institutions: a theoretical framework and methodological approach for assessing the robustness of social institutions

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ABSTRACT

Social institutions are relatively stable patterns of behaviour or joint action that help overcome fundamental problems and perform a function in society. Despite the importance of social institutions, scholars find it difficult to identify and assess their robustness empirically. Building on institutionalism theories, we develop a theoretical framework of institutional robustness, where robustness describes ideal, long-lasting, or otherwise strong institutions. This framework combines three dimensions drawn from the literature on institutional variation: degree of institutionalization, breadth of scope, and properties of quality. Using literature and theory, we propose definitions of robustness in each dimension and suggest that robust social institutions are robust in all dimensions. Moreover, we propose that robust meta-institutions are composed of individual robust institutions. For future application of the framework, we develop a methodological approach that follows a transparent procedure. We also include an example outlining how scholars can apply the framework in empirical work.
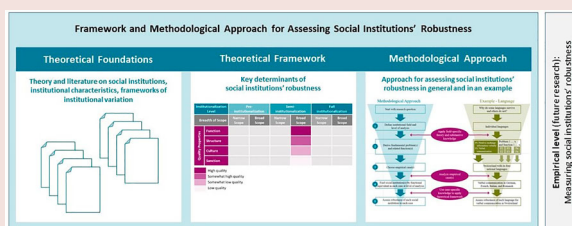
1. Introduction

Social institutions are a central concept in sociological research (e.g. Bitondo & André, 2007; Coleman, 1990; Durkheim, 1895/1982; Parsons, 1990; Spencer, 1929). Social institutions govern actors, their roles, and their relations, making them central

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to every social sphere. Although social scientists use the term 'institution' or 'social institution' in ambiguous ways, they generally refer to 'complex social forms that reproduce themselves such as governments, the family, human languages, universities, hospitals, business corporations, and legal systems' (Miller, 2019, p. 1). Following Turner (1997) and Miller (2010, 2019), among others, we position social institutions at the meso-level and conceptualize them as relatively stable patterns of behaviour or joint action, which help overcome fundamental problems and are geared towards a function in society. When we refer to institutions in this paper, we refer to social institutions.

For empirical social scientists, it remains difficult to measure and compare social institutions across contexts despite the wealth of literature on social institutions (e.g. DiMaggio & Powell, 1983; Jepperson, 1991; Tolbert & Zucker, 1999; W. R. Scott, 2008; Jonathan H. Abrutyn, 2016; Turner, 2010) and novel approaches to institutional analysis like Boolean algebra and fuzzy set mathematics (e.g. Ragin, 2009) or social network analysis (e.g. Mohr & White, 2008). The wide variety of definitions, socially constructed terms, and culturally distinct understandings further complicate comparative research on social institutions. Thus, after developing working definitions for key concepts like social institutions and robustness, this paper proposes a theoretical framework for assessing the robustness of social institutions based on the key dimensions of institutional variation found in the literature.

We make three contributions. First, we combine theories on social institutions into a unified theoretical framework. We identify a three-dimensional framework of institutional robustness based on the literature: degree of institutionalization, scope, and a quality dimension composed of function, structure, culture, and sanctions. From these, we build a theoretical framework that helps us understand what it may mean empirically for a social institution to be robust. Second, based on the framework and the examples discussed, we develop a set of propositions as a starting point for empirical institutional analysis. We propose for each dimension of institutional robustness that an institution is more robust when it meets the dimension's criteria. In addition, we propose that robust social institutions must be robust in every dimension of the framework, with any less robust point rather strongly decreasing overall robustness. This choice of a 'weakest link' approach instead of an average follows from consideration of different illustrative examples of social institutions, and we look forward to empirical operationalization and testing. Finally, we propose that a robust meta-institution is composed of robust individual institutions.

Third, to enable empirical testing, we describe a method for applying the theoretical framework in any institutional field and using it to assess the robustness of a social institution, or of the institutions that make up a meta-institution. We include a brief demonstration to illustrate the method, considering the social institutions of language. We argue that field-specific theory and substantive knowledge guide the identification of the specific fundamental problems and corresponding functions solved by social institutions in an institutional field. We suggest using functions as reference points for identifying the social institution or institutions that carry them out through common patterns of behaviour. For the comparison of institutions across contexts, this approach lets scholars identify functionally equivalent institutions even if they are not apparently similar. Applying the framework to assess the robustness of each of those institutions enables scholars to compare them across contexts.

2. Theoretical and conceptual foundations

In our effort to meaningfully compare common patterns of behaviour or methods of achieving shared goals across contexts, we could take several theoretical approaches. We have taken a sociological lens using social institutions, but related disciplines have their own preferred units of analysis—although institutions are a key concept in many disciplines, they usually act as framework conditions or determinants. Put very simply, an economist compares incentives, a political scientist compares policies, and an organisational scientist compares organisations. Since social institutions are not the only approach to our problem, it is worth considering the alternatives briefly.

The key challenge of comparing incentives or policies is finding comparable elements. If the same behaviour has different names across contexts—or even worse if different behaviours have the same name—it becomes very difficult to find the right unit of analysis. In many situations where there are comparable social institutions, there may be no governance or policy at all. Both fields face empirical challenges in the face of limited data or observable variation. This is not to say that any responsible researcher in either field would embark upon a naïve comparison of anything with the same name—economists, for example, are well aware of the many diverse currencies and forms of value. In brief, incentives and policies are important units of analysis, but they rely on the foundation of comparability.

Sociologists and organisational scholars align on their use of institutional theory to understand how shared goals are achieved (Greenwood et al., 2014). To compare units fulfilling the same shared goal, an organisational scholar would look for isomorphic organisations or institutional processes within organisations. However, there is some debate within organisational science about the role of institutional theory and of institutions relative to organisations. Suddaby (2010) critiques the field's emphasis on structural isomorphism of organisations with the same purposes in the same environments, arguing that the ideational elements of isomorphism are also important. Greenwood et al. (2014) argue that institutional work in organisational science focuses too much on isomorphic processes without recognizing the differences across the organisations in which those processes are embedded. Meyer and Höllerer (2014) add the insight that organisations are not limited to the formal and easily identifiable form, also including alternative means of collective effort.

Organisational science, therefore, is prepared to identify the comparable elements in diverse contexts, possibly including elements not immediately recognisable as organisations. DiMaggio (1988) and Oliver (1991) argue that organisations are not passive captives of their institutional environments but rather actors that drive those environments, making the organisation the source of variation and the appropriate unit of analysis. Methodologically, Suddaby (2010) warns against counting structures or measuring processes' outcomes, recommending methods that allow for some normativity. In situations where the comparable social institutions are something approaching organisations or institutional processes within organisations, a sociologist and an organisational scientist are likely to identify the same comparable units. However, not all social institutions are even informal organisations, and the organisational approach would miss these.

2.1. Defining institutions

The sociological literature on social institutions spans decades and encompasses a wide variety of purposes, approaches, and schools of thought. Our goal is to isolate the key dimensions of institutional variation in this literature, then develop working definitions of each dimension so that we can assess institutions. Therefore, we turn to the sociological literature for a definition of social institutions and the key dimensions describing individual institutions.

In sociology, institutions have been a key issue starting with Durkheim's (1895/1982) declaration that studying society concretely means studying institutions. Although that idea was disputed at the time, it gave rise to functionalist theories and analyses of institutions in their functional relations to other systems and social processes (e.g. Durkheim, 1893/1949; Parsons, 1990; Spencer, 1929). This functionalist perspective has been criticized for ignoring the process of change and for a certain circular logic wherein the need for a function creates an institution fulfilling that function (Coleman, 1990). Later, a more action-oriented approach focused on social processes in institutions (e.g. Berger & Luckmann, 1967; Goffman, 1967). Since that debate, social institutions remain a central topic in sociology and other social sciences (e.g. Coleman, 1990; Parsons, 1940; Powell & DiMaggio, 1991; W. R. Scott, 2008; Jonathan H. Abrutyn, 2014; Turner, 2010). The vast literature uses many definitions and usages of the term 'social institution' (Mohr & Friedland, 2008). Consequently, Abrutyn (2014) states that institutionalists use the concept in an ambiguous and sometimes even colloquial way without properly defining it.

There are already excellent overviews of the major institutionalism theory developments, including DiMaggio and Powell (1983), Coleman (1990), Scott (2008), and Abrutyn (2014) among others. One of the earliest definitions of institutions is provided by Spencer (1929), stating that, 'institutions are enduring patterns of social organisation that (1) meet fundamental functional needs or requisites of human organisation and (2) control the activities of individuals and groups in society' (in 2002, p. 22). Durkheim (1893/1949), in Alexander (1983), defines institutions in a similar vein as, 'a product of joint activity and association, the effect of which is to 'fix', to 'institute' outside us certain initially subjective and individual ways of acting and judging' (p. 259). Another definition comes from Parsons (1940), who states that institutions are 'normative patterns which define what are felt to be, in the given society, proper, legitimate, or expected modes of action or of social relationship' (p. 190). These definitions share the concept of institutions as social guidelines and patterns of behaviour, and together they introduce the concepts of institutions as functional, controlling, and legitimizing.

Parsons (1940, 1990) takes a rational approach to institutions as social relationships and regulatory norms leading to organisational structures. Coleman (1990) builds on Parsons and defines an institution as a 'set of regulatory norms … that has the potential to generate a concrete structure of relations' (p. 337). Taking a nested view of institutional work, Holm (1995) perceives institutions as nested systems and frameworks for action. For Berger and Luckmann (1967), institutions are any typification of a habitualized action. Focusing on cognitive frameworks, these authors emphasize the creation of shared knowledge and belief systems. This constructivism approach includes a shift in the institutional analysis focus away from the normative systems (Scott, 2008). Goffman

(1967) applied ethnomethodology to study his 'total institutions', which 'are entirely encompassing structures, highly sequestered from environments and tightly integrating various aspects of life around a singular plan' (Jepperson, 1991, p. 151).

New institutionalists (e.g. DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Zucker, 1977) see institutions as 'socially constructed, routine-reproduced, program or rule systems' (Jepperson, 1991, p. 149). One central element of new institutionalism is a trend toward conformity, challenging the traditional perspective that institutions adapt their structures and practices to a changing environment (DiMaggio & Powell, 1983). This absence of an evolutionary perspective and institutional development is often cited as the main weakness of new institutionalism (Kraatz & Zajac, 1996). Abrutyn and Turner (2011) conclude that no conflict exists between old and new institutionalism, although they observe a shift toward organisations as institutions, as demonstrated by Scott (2008).

Newer work seeks to build on old and new institutional theories and develop more complete explanations of institutional dynamics. Abrutyn and Turner (2011) object to the conception of institutions as organisations, and Abrutyn (2016) argues that institutions organise and connect organisations. For Abrutyn (2016), institutions—or institutional spheres—are the 'macrolevel structural and cultural milieus in which most lower-order phenomena (e.g. fields, organisations, encounters) are organised and connected' (p. 209). This macro-level definition of institutions means that there are only a handful of institutions in any given society. In contrast, Scott's (2008) institutions are at the meso-level between 'broader social institutions […] and the behaviour of individuals' (p. 17).

Miller (2019) provides an overview of different social-institutional theories from the perspective of philosophy (e.g. Scott, 2008 Searle, 1995, 2010; Turner, 1997; Weick, 1976), arguing that in contemporary sociology, social institutions refer to 'complex social forms that reproduce themselves' (2019, p. 1). He distinguishes social institutions from less complex social forms like 'conventions, rules, social norms, roles, and rituals' (Miller, 2019, p. 4), and from complex social entities 'such as societies and cultures' (2019:, p. 5), allowing for systems of institutions and meta-institutions that organise multiple institutions within themselves. He argues that a social institution must have an 'institutional end' (2019:, p. 5, 38) or function to play in society, which can be implicit or explicit. This echoes other definitions, such as Turner's (1997) definition, according to which social institutions help overcome problems through joint action and common patterns of behaviour. For our purposes, we define institutions as meso-level entities that exist within institutional fields, organising common patterns of behaviour towards some purpose.

2.2. Dimensions of institutional variation

Despite the vast literature, some reviews find limited assessment of institutions and their roles in society (DiMaggio & Powell, 1983; Meyer & Rowan, 1977, 1991; part II of Powell & DiMaggio, 1991; Rogers, 2017). In response, a new body of work aims to consolidate existing institutional theories and build upon them with new concepts and theories of institutional dynamics (e.g. Abrutyn, 2014; Abrutyn & Turner, 2011; Leslie & Clunan, 2011; Scott, 2008). Moreover, Scott (2008) calls for empirics to evaluate theoretical approaches and Jepperson (1991) demonstrates a keen interest in metrics and measurement. Abrutyn (2016) positions a dimensional approach at the 'cutting edge of

institutional analysis' (p. 224). The use of dimensional tools to assess institutions is an important step toward much-needed comparative research (Abrutyn, 2014).

Institutional empiricists use a wide variety of approaches for institutional analysis, ranging from Boolean algebra and fuzzy set mathematics (e.g. Ragin, 2009) to social network analysis (Mohr & White, 2008). Alongside the theoretical work that characterizes the school, new institutionalism also includes numerous empirical investigations (e.g. part III of Rowan & Miskel, 1999; Scott, 1991; Scott & Meyer, 1994). However, context-specific empirical approaches are difficult to apply across fields. Thus, the empirical literature also demands an applicable set of dimensions that capture institutional variation and enable empirical work across contexts.

Many authors develop three-dimensional frameworks that explain institutional variation in terms of the degree of institutionalization. Spencer described institutionalization as 'a process of growth in size, differentiation, integration, and adaptation' (Turner et al., 2002, p. 11). Berger and Luckmann (1967) describe three levelsof institutionalization: externalization, objectification, and internationalization. Lapassade and Lourau (1979) describe three periods of institutionalization. Boumard (1996) also suggests a three-phase approach, from setting social forms to the dynamic phase and finally to institutions as a process of actions. Tolbert and Zucker (1999) also differentiate three levels of institutionalization: pre-institutionalization (habitualization), semi-institutionalization (objectification), and full institutionalization (sedimentation).

Later frameworks of institutional variation and robustness include a dimension for the institution's scope. Turner (2010) discusses institutionalization, which for him includes the institution's culture, structure, and scope-defining boundaries. Leslie and Clunan (2011) also focus on boundaries and scope, defining them relative to the institution's potential constituency. For Abrutyn (2014), institutional autonomy is the 'master process' (p. 16) from which all other institutional variation flows. He defines institutional autonomy as a process, in which increasingly autonomous institutions develop distinct modes of integration.

Various scholars have outlined other frameworks for the key dimensions that describe institutional variation. Jepperson (1991) refers to three 'carriers of institutionalization' (p. 150): formal organisation, regimes, and culture. Chaty (2000) argues for analysing institutions in terms of agents, places and materials, and rules. Shaikh et al. (2015) frame their dimensions of institutional robustness as questions, asking whether an institution is symbolized, promotes tolerance, constitutes a place for social interactions, and promotes cooperation. Mohr and White (2008) develop a framework for modelling and evaluating social institutions based on three kinds of duality—styles and institutions, social and cultural, and higher and lower levels of social life. Martin (2004) identifies twelve defining criteria for identifying institutions, including their social nature, endurance, recurrence, constraining and facilitating function for individuals' behaviour, structuring of social positions and norms, constitution by embodied agents, internalization as individual identity, legitimating ideology, inherent conflict, continuous change, power-driven organisation, and inseparability from the individuals that compose them. For Abrutyn (2016), the key dimensions are the 'physical, temporal, social, and symbolic' (p. 224), along with an institution's degree of autonomy. Miller (2019) identifies four properties of social institutions across theories: function, structure, culture, and sanction.

The frameworks and dimensions proposed in the literature tend to overlap with one another. For example, Miller's (2019) function, structure, culture, and sanction seem to encompass other approaches. In Parsons (1940) framework, institutional function and structure are the objective entity, while the moral sentiments system that includes culture and sanctions are the subjective side. Function and structure appear consistently in discussion of institutional variation (Abrutyn, 2014; Coleman, 1990; Parsons, 1940; Scott, 2008; Turner, 2010). Culture appears as such and under different names like values or norms (Abrutyn, 2016; Bitondo & André, 2007; DiMaggio & Powell, 1983; Jepperson, 1991; Scott, 2008; Turner, 2010). Sanctions differentiate institutions by enforcing conformity (Abrutyn, 2009; Parsons, 1940; Turner, 2010), by promoting intergenerational transmission (Berger & Luckmann, 1967), and by ensuring taken-for-grantedness (Scott, 2008).

The following section articulates a theoretical framework of the key dimensions we identify from the literature that explains variation in institutional robustness. We provide a working definition for robustness and for each dimension based on the literature. Finally, we develop propositions about institutional robustness based on the framework and its dimensions.

3. Theoretical framework of institutional robustness

This subsection proposes a theoretical framework of what makes a social institution robust. We begin with a working definition of robustness. There are a number of institutional ideals described in the literature, from internalization and longevity (Parsons, 1940) to 'progress towards greater size, coherence, multiformity, and definiteness' (Spencer, quoted in Turner et al. (2002), p. 20) and total institutions (Berger & Luckmann, 1967; Goffman, 1967; Jepperson, 1991). The concept of autonomy is particularly relevant, capturing 'structural and symbolic independence' (Abrutyn and Turner (2011), p. 14). As all dimensions of institutional autonomy are interconnected, Abrutyn (2009) states that the ideal institution has high values in every dimension of variation. We therefore use the term 'robust' to describe these ideal, long-lasting, or otherwise strong institutions, and suggest a framework that captures the dimensions of institutional robustness.

Figure 1 proposes a framework based on three key dimensions of social-institutional robustness derived from the literature. First is the degree of institutionalization, divided into three phases of pre-institutionalization, semi-institutionalization, and full institutionalization (i.e. Berger & Luckmann, 1967; Tolbert & Zucker, 1999). The second dimension is the scope of the institution, which we designate simply as narrow or broad (i.e. Leslie & Clunan, 2011; Scott, 2008; Turner, 2010). The third dimension captures quality, entailing four specific properties based broadly on the literature and named according to Miller's (2019) four properties of social institutions: function, structure, culture, and sanction. We will articulate the full foundation and meaning of each dimension in this section after briefly introducing the framework here.

The columns in Figure 1 represent institutionalization in three levels. Each column is additionally divided into two parts for the institution's scope. The vertical axis covers the quality dimension, with each row depicting one of the four properties of quality. Taken together, these three dimensions depict the key dimensions of institutional variation. The value of this theoretical framework is that it brings together multiple institutionalism

Institutionalization Level		Pre-institutionalization		Semi-institutionalization		Full institutionalization	
Breadth of Scope		Narrow Scope	Broad Scope	Narrow Scope	Broad Scope	Narrow Scope	Broad Scope
Quality Properties	Function						
	Structure						
	Culture						
	Sanction						

High quality
Somewhat high quality
Somewhat low quality
Low quality

Figure 1. Theoretical framework of social institutions (illustration).

Note: Location (all four properties/rows) is determined by institutionalization level and breadth of scope. The properties of the quality dimension are coloured according to robustness, from white (not robust) to dark magenta (very robust).

approaches into a simultaneous assessment of a given institution. In addition, this framework helps us specify what we mean by a robust social institution.

Locating a social institution in a specific column identifies its institutionalization phase, and the subdivisions of the three institutionalization-phase columns captures scope. In Figure 1, the cells are coloured in different shades of purple to reflect the robustness of the quality dimension. The example is semi-institutionalized, broad in scope, and has varying levels of institutional quality. The following sections provide more detailed working definitions of each institutional dimension as it appears in the literature, then develop propositions for each one and for the framework overall. The specific definitions of robustness in institutionalization quality will vary depending on the type of institution, but we can provide general theory-based descriptions.

3.1. Degree of institutionalization

The development, establishment, or institutionalization of institutions is a key issue in the literature, partially because various schools of thought have taken different approaches to this topic. Earlier institutionalists tended to describe a process of growth and adaptation (Turner et al., 2002), or phases like Bitondo and André (2007) progression from externalization to objectification and then internationalization.

There are several approaches to defining levels or degrees of institutionalization. Parsons (1990) describes a pathway from common values to common goals and normative control. For Jepperson (1991), the key is an institution's level of vulnerability to intervention by collective action: more institutionalized institutions are embedded, old, central, and taken for granted. Holm (1995) defines institutionalization as 'stability and interconnectedness with other institutions' (p. 401), similarly to Zucker (1977). Holm goes on to add that institutionalization processes are explained by wavelike patterns of change in the interconnected network of institutions, making the primary driver of change an

endogenous rather than exogenous force. Tolbert and Zucker (1999) propose three institutionalization levels: pre-institutionalization (habitualization), semi-institutionalization (objectification), and full institutionalization (sedimentation). Lapassade and Lourau (1979) use a three-phase approach: the first phase develops regulations, roles, and frameworks; the second phase develops new patterns of behaviour; and the third phase establishes the new patterns as actors' collective identity.

More recent literature draws on the 'old institutionalism' insight that institutions differentiate and develop autonomy over time (Turner et al., 2011). Turner (2010) focuses on institutional differentiation and autonomy, or the process from individual action to cultural systems. Autonomy is the 'process by which institutional spheres become discrete cultural spaces' (Abrutyn, 2016, p. 210). Abrutyn (2016) defines higher autonomy in terms of development over time, relationships to other institutions, currency of media and beliefs across institutions, sedimentation of interaction into ritual, and ability to 'reverberate and shape the reality of others' (p. 224).

We apply the three-level approach and terminology formalized by Tolbert and Zucker (1999), differentiating among pre-institutionalization, semi-institutionalization, and full institutionalization. This clear terminology provides a framework within which we include other scholars' contributions, which are based on similar ideas both empirically (e.g. Bitondo & André, 2007) and theoretically (e.g. Bitondo & André, 2007; Eisenstadt, 1964; Jepperson, 1991; Lapassade & Lourau, 1979).

During pre-institutionalization, a few actors develop institution-related behaviours driven by some innovation in response to a problem or change. By leading to structural arrangements, these processes become habitualized but may not survive past the tenure of their developers. In semi-institutionalization, new structural arrangements begin to formalize or solidify in their broader contexts. On this level, behaviours become patterns with attached shared meaning, and a social consensus emerges on the value of an institutional structure. At this point, objectified structures diffuse widely among heterogeneous adopters who can themselves influence the regulations, norms, and practices defined in the pre-institutionalization level. Finally, in full institutionalization, new behaviour patterns have a high resistance to change and are transmitted to other contexts and new generations, who may take those patterns for granted. These patterns are deeply embedded in society and have historical continuity (Tolbert & Zucker, 1999).

This definition of full institutionalization reflects that endurance—persistence over time—is one of the most common characteristics of a social institution (Berger & Luckmann, 1967; Martin, 2004; Miller, 2019). In line with that argument, Abrutyn (2009) argues that a key dimension of social institutions is their degree of autonomy, securing their structural and cultural independence. According to Tolbert and Zucker (1999), interest groups' resistance or support plays an important role in getting to full institutionalization, as do the new institution's outcomes. They argue that with support and good outcomes, nearly all possible constituents adopt the new institution and begin to build historical continuity. In contrast, with opposition and bad outcomes, the institution may de-institutionalize, reversing back down the progression and losing historical continuity. Fligstein (2001) states that this struggle between supporters and opponents of new institutions describes most modern social dynamics.

In sum, this dimension describes the process of institutionalization and development of institutional structures. As institutions move through institutionalization levels, their

common patterns of behaviour stabilize and become more persistent over time. Regarding institutionalization, we propose:

> *Proposition 1: A social institution is more robust as it advances through the institutionalization process.*

3.2. Institutional scope

The scope and boundaries of an institution are a key dimension, differentiating the institution physically, temporally, relative to its context, and relative to its population of potential members. Abrutyn (2009) refers to the breadth of an institution, or its power to orient actors' behaviour toward that institution's norms, as a key component of institutional autonomy. For Scott (2008), the key issue is conformity, which is derived from clear legal, moral, and cultural boundaries. For Abrutyn and Turner (2011), the ability of the institution's symbolic media to circulate defines the speed and size of institutional expansion. Turner's (1997) version of scope is practical, focusing on the institution's size and number of constituents. Jepperson (1991) takes a similar approach, emphasizing that the institution's size relative to its context is what defines its scope or its being widespread. Goffman (1961) requires a total institution to be entirely encompassing within its context.

Many definitions of scope focus on the role of institutional boundaries. Abrutyn (2014) describes an ecosystem of institutions, dividing up time and space in discrete or overlapping and competing ways. In this context, the institutions that are the most differentiated have the clearest boundaries (Abrutyn, 2016). Turner (2010) and Leslie and Clunan (2011) focus on the role of boundaries for establishing the scope of an institution. Leslie and Clunan (2011) argue that by protecting the institution and providing institutional continuity, boundaries contribute to social institutions' robustness. They argue that boundaries define who is subject to an institution's rules, how far the institution's rules reach, and when conflict and cooperation are internal versus external issues. By defining access to a social institution, boundaries also serve to reproduce or alter institutions (Eisenstadt, 1964). Institutional boundaries can be geographic or another characteristic used to divide jurisdictions or categories. They vary in their nature and permeability, which substantially affect the mechanisms of institutional change.

Building on this literature, we differentiate between narrow and broad scope in social institutions. Narrow institutions are small or low-density, representing a smaller part of their possible jurisdictions. Broad institutions are large or widely adopted, representing a bigger part of their possible jurisdictions. An institution that fills its niche is more robust than one competing with others in the same niche, and a larger institution is more robust than a smaller one. We propose:

> *Proposition 2: A social institution is more robust when it is broader in scope.*

The dimensions of institutionalization and scope are related: Tolbert and Zucker (1999) argue that the 'variance in implementation' (p. 179) among social institutions decreases along the institutionalization process, while Leslie and Clunan (2011) argue that boundaries foster institutional continuity by providing legitimacy and support. Abrutyn's (2014) concept of autonomy has a strong component of differentiation and of the legitimacy provided by boundaries.

3.3. Quality dimension

The quality dimension includes four properties, which we describe individually.

3.3.1. Function

Most institutional scholars include institutional function in their institutions' key descriptors. Whether they be large macro-level spheres that organise whole societies (Abrutyn, 2016) or simply the rules that govern any habituated interaction (Berger & Luckmann, 1967), institutions are frequently defined by what they do. For Miller (2019), the institution's function is its defining feature, the problem it exists to solve, and its overall purpose or end. This draws an important distinction between what constitutes a social institution (i.e. its function) and what keeps it in existence (i.e. its common pattern of behaviour or structure).

Institutions function to help their constituents survive and remain 'viable in an environment' (Turner, 1997, p. 4). As summarized by Turner et al. (2002), Spencerian sociology holds that 'the most basic institutions emerge and persist because they provide a population with adaptive advantages in a given environment, both natural and social' (p. 102). For Scott (2008), this means providing 'stability and order' (p. 50). Functions that ensure survival often do so by aligning individual and collective interests (Coleman, 1990; Parsons, 1940). If the institution's members agree on a fundamental problem that needs to be solved through their joint action, the social institution is more explicit and more formal (Scott, 2008).

The function of a social institution is its constituent factor (Miller, 2019), so a robust social institution must fulfil its function. However, this is not a precise definition of what functional characteristics contribute to high quality. Turner (1997) summarizes the issue, stating 'Ultimately, a social institution is defined in terms of its consequences—often termed 'functions'—for maintaining, reproducing, and organising a population so that it remains viable in an environment' (p. 4). We propose:

> Proposition 3a: A social institution's quality is higher when it fulfils its function more effectively, hence attaining its purpose or solving its problem.

A functionalist perspective evaluates institutional robustness almost exclusively in terms of this dimension, but Turner (2003) points out that an evolutionary perspective is required for a functionalist approach to make sense. Therefore, this property of the quality dimension is strongly related to the institutionalization dimension. Indeed, one of the key criticisms of new institutionalism is its perceived neglect of institutional formation and change in favour of a more functionalist approach (Holm, 1995).

3.3.2. Structure

Structure, along with culture, is one of the most common institutional characteristics. From some points of view, institutions are essentially structures (Goffman, 1961; Parsons, 1990). Institutional structures can be structures of relations (Coleman, 1990), structures of roles or positions (Abrutyn, 2009; Bitondo & André, 2007; Scott, 2008), levels of authority or organisation (Jepperson, 1991; Parsons, 1940), or mechanisms of integration (Turner, 2010). In sum, structure captures the relations among individuals, comprising

the roles, rules, and tasks within the institution and the relations or hierarchies among them (Abrutyn, 2016).

The robustness of the social institution's *structure* depends on the specificity of each actor's role, responsibilities and place in the hierarchy. These structures enhance coordinated action, resulting in relatively stable patterns of common behaviour (Miller, 2019). Therefore, an institution with a robust structure is one with clearly defined roles, linkages among actors, and hierarchies. We propose:

> Proposition 3b: A social institution's quality is higher when its structure is more clearly defined and more enduring.

The structure property of the quality dimension is related to other elements of the framework. Abrutyn (2014) refers to 'structure-culture' rather than taking the two independently. According to Miller, the structure's relationship to the institution's overall function makes the structure relevant. Tolbert and Zucker (1999) state that structure is related to the degree of institutionalization: pre-institutionalization structures are new and exist in response to a specific problem, while on the semi-institutionalization level they have diffused more. In full institutionalization, structures are spread across actors and stable over time.

3.3.3. Culture

Culture, like structure, appears in nearly every set of institutional characteristics. Culture covers the meanings, belief systems, social norms, and symbolic systems that are shared by an institution's constituents (Scott, 2008). Abrutyn (2016) describes these as generalized symbolic media, the 'vehicles of culture' (p. 225) that individuals use when they interact. Culture is the mechanism for integration within an institution (Turner, 2010), and the tool by which an institutional pattern is reproduced (Abrutyn, 2009). Culture entails the taken-for-granted accounts (Jepperson, 1991), the expression of common values (Coleman, 1990), and the 'canopy of legitimations' (Berger & Luckmann, 1967, p. 79) that carry an institution across generations. For Miller (2019), institutional culture is implicit and 'comprises the informal attitudes, values, norms, and the ethos or 'spirit' which pervades an institution' (p. 8). Culture influences the behaviour and practices of individuals and how they carry out tasks.

Culture is the extent to which shared values, attitudes, and incentive mechanisms influence the common behavioural patterns of actors in a social institution (Miller, 2019). It gives the institution its 'texture, character, idiosyncrasy, and life' (Abrutyn, 2014, p. 121) and encompasses the legitimation of the social institution (Eisenstadt, 1964). Turner et al. (2011) focus on institutional culture as a mechanism for internal integration and legitimacy. Therefore, an institution has a robust culture when its symbolic media is more distinct, when its constituents are fully integrated into the institution, and when the institution is perceived as legitimate. All these things contribute to a more consistent and more taken-for-granted influence of the institution over individuals' behaviour. We propose:

> Proposition 3c: A social institution's quality is higher when its culture more strongly influences a common pattern of behaviour among its actors.

3.3.4. Sanction

Institutional sanctions ensure regulation and control, preventing deviation from shared patterns of behaviour. Durkheim (1893/1949) explains that institutional enforcement can be coercive, and Turner (2010) reinforces the forceful potential of institutional regulations. For Parsons (1940), institutional enforcement is moral, with individuals reacting to pattern-breakers with indignation. In Scott's (2008) regulative, normative, and cultural-cognitive institutions, sanctions are coercive, moral, and imitative or traditional, respectively. Similarly, Miller's (2019) sanctions are consequences for breaking rules and norms that range from formal legal punishment to informal moral disapproval. For Abrutyn and Turner (2011), institutional sanctions are based on the unequal distribution of resources among institutional constituents. Abrutyn (2009) explains that resource scarcity is a source of conflict among actors, and the most autonomous institutions transition that conflict into competition. Autonomous institutions are also characterized by their authority over other institutional domains (Abrutyn, 2014).

In sum, sanctions ensure individuals' compliance with the agreed-upon rules of conduct, standards, and responsibilities. Individuals in more robust social institutions are likely to find it important that the agreed-upon values, norms, and roles are respected. As an institution builds robustness, its constituents' compliance with agreed-upon rules of conduct, standards, and become stronger. Therefore, an institution has robust sanctions when the reaction to pattern-breaking is swift, consistent, and effective. We propose

> *Proposition 3d: A social institution's quality is higher when its sanctions are applied more quickly and reliably in response to violations of agreed-upon rules.*

Sanctions are related to institutionalization and are not necessarily present in fragile and small pre-institutionalization institutions where actors still need to develop and consolidate a common pattern of behaviour (Tolbert & Zucker, 1999). Berger and Luckmann (1967) discuss the problem of enforcement at length, pointing out how new generations must maintain the institutional definition of situations and keep new members in line through spontaneous correction or 'outright coercive measures' (p. 80). From that perspective, sanctions are the mechanism for the intergenerational transmission of institutions.

Overall, the quality dimension is robust when all four of its properties are robust. Therefore, we make the following proposition for the dimension overall:

> *Proposition 3: A social institution is more robust when its quality is higher in all four properties of the quality dimension—function, structure, culture, and sanctions.*

3.4. Overall evaluation

Abrutyn (2014) relates dimensions to one another, pointing out that they are interdependent such that the ideal is to have high values in every dimension. We follow and state that a robust social institution must have robustness in all three of its dimensions, not merely one or most. This proposition needs to be empirically tested against the other possibilities, for example that a single specific dimension is sufficient or that two of the three are sufficient. Therefore, our last proposition is:

Proposition 4: A robust social institution is robust in every dimension of the framework: it is fully institutionalized, broad in scope, and has high quality in all four properties. A weak element in any dimension makes for a weaker institution.

Figure 2 demonstrates four illustrative examples of social institutions at different robustness levels for varying reasons. These are not ideal types, merely examples. Based on the theoretical framework, we propose that a social institution is more robust when it is more like the top left example: fully institutionalized, broad in scope, and high quality across all four properties. In contrast, the weakest possible social institution—top right—is in the pre-institutionalization phase, narrow in scope, and low quality.

Figure 2 also shows examples of two other possible configurations—though many more are possible. The bottom left example is a broad institution on the pre-institutionalization level with very strong properties—possibly a new institution with high potential. Finally, shown in the bottom right, is a broad social institution with a relatively clear function and structure, but weak culture and sanctions. One challenge for the framework is that it is not clear how the individual dimensions are interrelated or whether all configurations are theoretically possible. For example, further institutionalization implies the solidification of structures. Therefore, it is not clear whether an institution can be fully institutionalized with weak structures. Empirical investigations are necessary to clarify such questions.

These propositions and examples are rather abstract. For empirical testing, they need be operationalized and specified into testable hypotheses. In addition, we do not know the relative weights or configurational characteristics of the dimensions and the relationships among them. The criteria for robustness and its observability will be specific to each field. Therefore, in the next section, we move from generic sociological theory and to field-specific context. To identify the conditions that make social institutions robust, we need to understand the specific characteristics of the field and its theoretical concepts. Scholars can apply our generic theoretical framework to any institutional field by elaborating on the field-specific theory and concepts, which we illustrate in the following section.
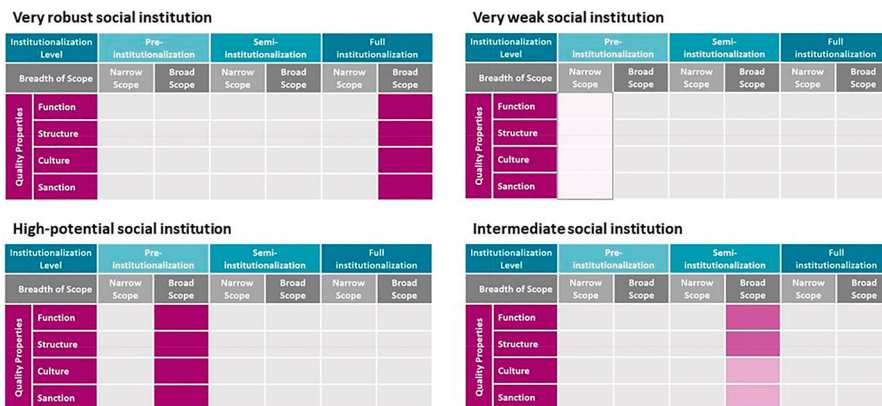
Figure 2. Examples of observable robustness of social institutions using the framework (illustrations, not ideal types).

Note: Location (all four properties/rows) is determined by institutionalization level and breadth of scope. Properties are coloured according to robustness, from white (very weak) to dark magenta (very robust).

4. Applying the theoretical framework

The purpose of this framework is to facilitate empirical analysis and comparison. Therefore, the following section suggests a novel and transparent methodological approach for applying the generic framework to assess the robustness of social institutions. It is important to follow a clear procedure for identifying social institutions, specifying the function under analysis, and using a common level of analysis if comparing. Just as we take care to report the assumptions made by empirical methods, we must be explicit in reporting how we arrive at the specific social institutions under analysis and why they are comparable.

We propose a five-step process for applying the framework, summarized in the left-hand blue column of Figure 3. First, starting from a research question, we begin by defining the institutional field. This step also includes determining the specific level of analysis based on field-specific theory and knowledge. Second, we identify the fundamental problems at the specified level of analysis that apply to the research question, along with the functions related to each. This step also relies on the researcher's understanding of the field. Third, we decide on a specific empirical case that matches our level of analysis and research question. Fourth, we identify the functional equivalents (DiFrisco, 2017; Renold, 2020) and use them to find the social institutions with those functions in our empirical case. Fifth, apply the theoretical framework and assess the social institutions' robustness.

At every step of the process, we are narrowing the focus of the research question to a question that can be addressed empirically. Every level can potentially require choosing among multiple possible levels of analysis, fundamental problems, empirical cases, and
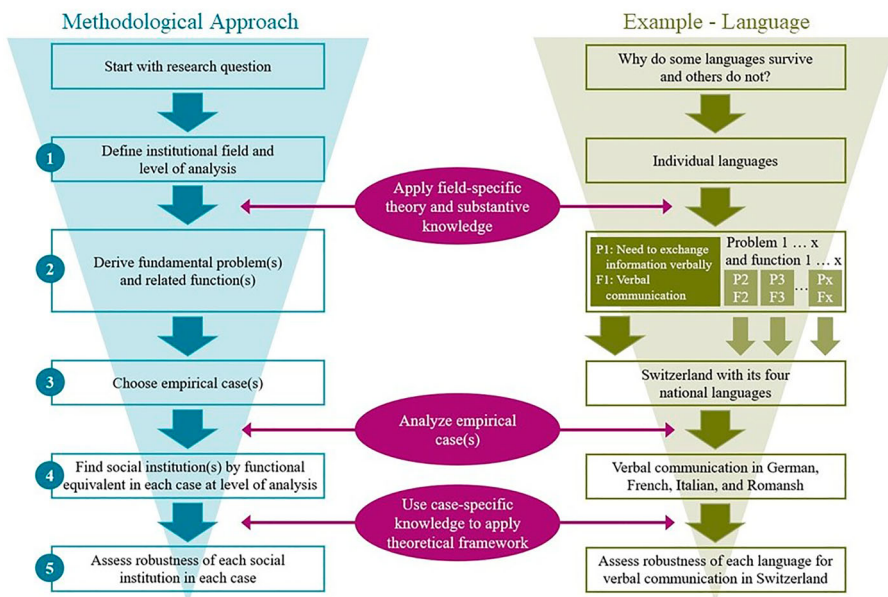
Figure 3. Methodological approach for applying the theoretical framework generally (left) and with language as an example (right).

Note: The general methodological approach is shown in blue on the left side of the figure. The green right side of the figure shows an example application in the field of language.

even social institutions. We use this process to transparently communicate and clearly understand the scope of our analysis. It is very likely that this process will branch off, with researchers selecting multiple problems or cases and following the last steps for each—for example, choosing multiple problems and assessing the multiple institutions that leads to. Regardless, clearly reporting and understanding the scope of the analysis enables better transparency and more valid interpretation of results.

The right-hand side of Figure 3 shows the process using the example of language as a social institution. Language is a common example that authors like Miller (2019) use when introducing the concept of the social institution, often alongside families, religions, and others. The example is intentionally brief and follows existing literature, with the main goal being to show how the framework can be applied rather than to present a full formal analysis of languages as social institutions. We emphasize that we are not sociologists of language, but we find it a useful example. The research question we address on the topic of language is *Why do some languages survive and others do not?* This is a very broad research question, and we narrow it down to a manageable analysis using the steps.

4.1. Defining the institutional field and level of analysis

The first step is to specify the level of analysis and thus the context in which we will examine our research question. In this step, the researcher starts by identifying one or more institutional fields relevant for answering his or her research question and elaborates on the theory of that field to understand its specific logic and functioning. We conceptualize institutional fields as distinct social arenas within the social world, in which actors and organisations share a common meaning system. Each field has its specific logic, capital, and rules of functioning. Examples for related concepts are Turner's (1997, 2010) 'institutional domains' or Abrutyn's (2014) 'institution spheres', such as economy, law, and education, which all have their own symbolic media and at least one basic resource.

New institutionalists use the concept of the 'organisational field' (DiMaggio & Powell, 1983; Scott, 2008) to refer to 'those organisations, that, in the aggregate, constitute a recognized area of institutional life' (Scott, 2008, p. 86). According to Scott (2008), defining such fields helps delineate the environment of social institutions and the settings within which they operate. By investigating how fields of action evolve, remain stable, and transition, new institutionalists argue that setting the rules in a social field is about creating institutions (Fligstein, 2001). Thus for new institutionalists, the field-concept helps situate the locus of institutional processes and thus provides the level and unit of analysis suited to study those processes (e.g. DiMaggio & Powell, 1983; Meyer & Scott, 1983).

To make our research question feasible for an empirical investigation, we need to narrow down its scope, which we can do by choosing a specific level of analysis that lets us meaningfully compare a smaller set of languages. The level of analysis differentiates cross-case variation from within-case variation. A high level of analysis—for example a whole country, meta-institution, or institutional field—is broadly applicable but can under-report robustness because subgroup variation undermines the common pattern of behaviour in the social institution. A low level of analysis—for example a region, sub-group, or specific function—is more specific but can over-report robustness if it is too low, because a smaller group is likely to have less variation in its

common pattern of behaviour. The correct level of analysis is defined by the research question—if the objective is to examine whether a function is carried out consistently and robustly across a broad context, it should be broad. If the objective is to look at how different units in a broad context carry out the same function, it should be smaller.

For the language example, we need a level of analysis that enables meaningful comparison of multiple languages while setting boundaries on the scope of our analysis—we cannot compare every language. We choose to focus on the level of individual languages within a common area, therefore comparing a group of languages in a relatively homogenous context. The languages themselves—not the country or region in which they are spoken—are the level of analysis.

4.2. Deriving fundamental problems and related functions

The third step is to identify the fundamental problems at our level of analysis that relate to our research question, along with the functions related to each. The research question is an important guide at this step for determining which or how many problems and functions to address. It is impossible to capture every problem and function, but some research questions cannot be fully addressed without certain functions or a minimum coverage of all functions. This step depends on the field-specific theory and the researcher's substantive knowledge.

As shown in the right side of Figure 3, there are a multitude of problems solved by functions in languages. For example, the problem of needing to exchange information verbally is solved within a given language by verbal or spoken communication. However, written communication, community, and others are all important linguistic functions. We focus on verbal communication, but do so with the awareness that fully answering our research question would require us to address more of the problems, if not all of them.

At this point, we have made two decisions to limit the scope of our analysis: we have chosen to focus only on some set of languages spoken in a limited geographic area and we are limiting our analysis to one linguistic function. These choices make sense for feasibility and our research question, but limit the external validity and comprehensiveness of our analysis. The point is to help us identify empirical cases while forcing us to be clear and transparent in our decisions. We need to be aware of the methodological trade-offs we are accepting and must communicate those clearly.

4.3. Choosing empirical cases

With a clear understanding of the level of analysis and fundamental problems that are most important to the research question, we can look for an appropriate empirical case. The case may be at the level of analysis (e.g. one language), or it can attempt to capture multiple examples of the level of analysis (e.g. multiple languages). For our example, we need an empirical context with multiple examples of our level of analysis—a context with multiple individual languages, ideally with heterogeneity in language survival and a relatively homogenous general context across language groups. For this purpose, we choose Switzerland. The country has four national languages—

German, French, Italian, and Romansh—among the many languages spoken by residents. For feasibility, we further narrow our focus to only those four national languages plus English, which is widely spoken despite not being a national language.

4.4. Finding social institutions

This step identifies the specific social institutions carrying out the same function in all of our empirical cases. According to DiFrisco—who developed a functional equivalence approach for biology—functional equivalents are 'distinct traits that have the same function' (2017, p. 2). Focusing on functions within a given level of analysis allows us to compare social institutions to investigate not their similarity but the extent to which they are functionally equivalent (Braun, 2006; Dogan & Pelassy, 1984; Renold, 2020; Schriewer, 1987).

The researcher's knowledge of the field should help identify its fundamental problems. For example, one key problem in language is the ability to communicate verbally. Multiple solutions exist to solve this problem—spoken versions of various languages—and may even seem extremely dissimilar despite their shared functions (Dogan & Pelassy, 1984). Functions are the reference points for the identification of the different institutions that may carry them out (Coleman, 1990; Luhmann, 2010).

In our language example, we focus on the function of verbal communication and identify five social institutions: the spoken forms of each language. This functional equivalent is particularly general—others can be more complex. For example, while English-speaking students take spelling tests, Japanese *kanji* learners are tested on stroke order. The function is writing correctly, of which spelling and stroke order are distinct traits.

It is important to maintain focus on the level of analysis here—if our level of analysis were Switzerland instead of its four national languages plus English, we would find that the social institution of verbal communication in Switzerland is very inconsistent and not robust as a single institution because it lacks a unifying common pattern of behaviour. While that would be accurate if our research question was looking at one social institution describing that country's common patterns of linguistic behaviours, it does not apply to our level of analysis, which compares the spoken languages themselves.

4.5. Assessing social institutions' robustness

After using the full process above to show how we select social institutions for comparison, the final step is to assess the robustness of each institution. For this step, we apply the framework to the relevant data. We begin by briefly describing our data.

4.5.1. Data and context description

This example is a brief illustration of the method. The data we use comes from a description of languages in Switzerland (Tissot, 2019). A full study should use as much evidence as is necessary to justify its assessment of institutions' dimensions. When we apply the data, we will clearly state the cut-offs, definitions, and criteria used to allocate social institutions' dimensions to a place in the framework.

To summarize the overall linguistic context in Switzerland: while the versions of French, Italian, and English spoken in Switzerland are generally similar to their international counterparts, Swiss-German and Romansh are specific to the country. The Swiss-German spoken in Switzerland has many spoken dialects, but cross-dialect communication within the country is possible. Romansh is an old, small, and shrinking language with five major and very distinct dialects. Although there is one unifying standard for written Romansh, not all speakers accept it and it does not apply to spoken Romansh. Finally, all of today's Romansh speakers also speak at least one other national language (Tissot, 2019).

4.5.2. Institutionalization phase

We begin with the dimension of institutionalization and argue that more fully institutionalized institutions are more robust. The key to full institutionalization is historical continuity: due to being fully embedded in a society and therefore having a high resistance to change and degree of both exteriority and objectification, social institutions survive across generations. Therefore, historical continuity is our threshold for full institutionalization.

Among Swiss national languages, verbal communication in German, French, and Italian is fully institutionalized in every case, with parents and schools teaching those languages to children. English is taught by some parents and most schools. However, most cantons only teach English in schools after students have begun to learn a second Swiss language. Therefore, we categorize English as semi-institutionalized in Switzerland.

Verbal communication in Romansh, although once fully institutionalized, is currently in a process of decline according to our data. The common pattern of behaviour is diminishing, with every Romansh speaker also speaking a second language and parents decreasingly likely to teach Romansh to their children as a primary language. While the other languages are commonly taught as second languages in Swiss schools, Romansh is not. Therefore, we conclude that Romansh is losing its historical continuity, and we categorize Romansh as semi-institutionalized. It is interesting to observe that, although English and Romansh have the same status, they are on very different trajectories.

4.5.3. Institutional scope

The next dimension is the social institution's scope. This is the institution's degree of penetration among potential constituents. Our proposition states that institutions that are more robust are broader in scope. In this case, the potential constituency is Swiss inhabitants, and we can use quantitative data to determine the scope of each language. German is the main language of 63% of the population, compared to 23% French, 8% Italian, and 0.5% Romansh.[1] In addition, 45% of Swiss people say they regularly speak English.

With quantitative data, the challenge is to determine the appropriate cut-off points for qualifying a certain scope as broad or narrow (e.g. Ragin, 2009). Although all three of the larger Swiss languages are spoken outside the country, we only consider their prevalence within our empirical case. In this case, Italian and Romansh have very low usage compared to the other languages. With less than 10% of the Swiss population, Italian and Romansh are small, so we define German, English, and French as 'broad' and Italian and Romansh as 'narrow.' We can choose different cut-off points—for example only

categorizing Romansh as narrow—but we must clearly state our choice. If there are multiple possibilities, it is worthwhile to check the options to see if the choice dramatically affects the results.

Moreover, the weakening of the Romansh is also tied to a shift in the social institutions' boundaries, leading to a narrowing scope and higher permeability. With the institutionalization level and scope determined, we already have the location of our social institutions in the framework, as shown in Figure 1. The final step is to fill in the squares according to each institution's robustness in the four properties.

4.5.4. Institutional quality

For the quality dimension, we need to identify how high the quality is of each property. The first property is the social institutions' functions. Our proposition for this property states that a higher quality social institution fulfils its function effectively. For this analysis, we define quality in the function of verbal communication as enabling all speakers to communicate effectively. French, English, and Italian speakers throughout Switzerland can easily communicate, so those social institutions are very high-quality in this property. In German, Swiss speakers of the language can have trouble communicating verbally across dialects. This problem is solved relatively easily with the use of High German, so we categorize German as somewhat high quality. Romansh, however, has five distinct spoken dialects with no spoken reference language—the reference version of the language is written only. Therefore, we categorize this function as somewhat low quality.

The second property of quality is structure, which is higher quality when the institution's structure is clearly defined and stable. Port (2010) posits that languages are structured by categories, or an 'inventory of conventions' (p. 315) that describe the outlines of grammar and other 'regularities of a language' (p. 316). Lakoff (2008) echoes the organisation of language by categories, adding shared mental models. All five languages have spoken grammars that include shared categories and mental models, which structure verbal communication. German and Romansh have variation across dialects, making this structure somewhat less consistent. Again, for verbal communication, German speakers can revert to a shared foundation while Romansh speakers cannot. Consequently, we rank verbal communication in French, English, and Italian as high quality, in German as somewhat high quality, and in Romansh as somewhat low quality.

Third is culture, which is higher quality when it more strongly influences a common pattern of behaviour among its actors. Languages' communities of speakers or 'speech community' (Larsen-Freeman, 2011, p. 49) demonstrate their cultures through their speaking behaviour. It is important to distinguish the scope and institutionalization of an institution from its cultural robustness—regardless of institutionalization level or scope, the individuals within an institution can have any level of cultural robustness influencing a common pattern of behaviour. Verbal communication in German, French, English, and Italian all have high quality cultures—referring to the culture of common verbal communication behaviour, not culture in broader society. Romansh speakers, however, are all multilingual and do not use Romansh throughout their daily lives. Therefore, we score Romansh as having a somewhat low-quality property of culture. Again, this is not about the overall culture of the Romansh people, but about the specific robustness of culture as a property of Romansh as a social institution regarding the function of verbal communication.

Finally, the fourth institutional property is sanctions, which are higher quality when they are applied consistently upon rules violations. Kasper and Wagner (2011) argue that violating linguistic conventions is often perceived and sanctioned as a violation of the moral order, akin to cutting in line. This is a very high-quality sanction, which applies to verbal communication in German, French, English, and Italian. However, Romansh speakers are likely to use words or patterns from other national languages when speaking, and those violations do not interrupt communication or draw consistent sanctions. We score this property as somewhat low quality for Romansh. Figure 4 shows the full assessment for all five languages.

4.6. Example analysis results

Applying the framework allows us to compare the five social institutions. Going through the process above makes our reasons for each categorization transparent. We can apply our propositions about what comprises robustness to the four institutions using the theory and data in the field, thus comparing their robustness.

Proposition 1 states that institutions are more robust when they are more institutionalized. Although all five languages are old, English is still growing in Switzerland and Romansh's regression makes it less robust. Proposition 2 states that broader institutions are more robust, in which case verbal communication in German, English, and French —the larger languages within Switzerland—is more robust than it is in the smaller languages, Italian and Romansh. If there were more detailed categories, Romansh
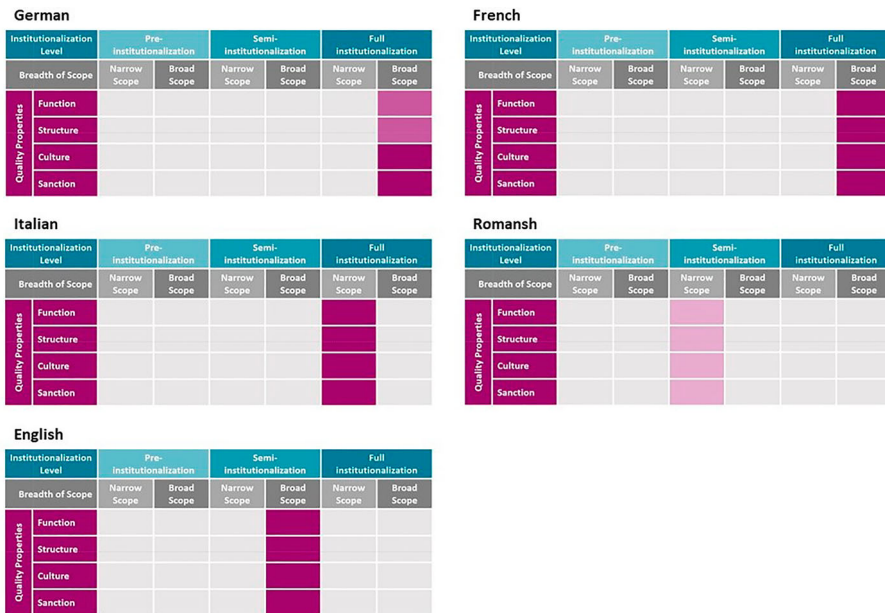
Figure 4. Example assessment of social institutions – Verbal communication in Swiss national languages.

Note: Location (all four properties/rows) is determined by institutionalization level and breadth of scope. The properties of quality are coloured according to level of quality, from white (low quality) to dark magenta (high quality).

would be far behind Italian since it is spoken by such a small proportion of the population. Proposition 3 holds that a social institution is more robust when it is higher quality, which occurs when all four properties contribute to that high quality. By that metric, verbal communication is the highest quality in French, English, and Italian, followed by German slightly behind and Romansh far behind. Finally, proposition 4 asserts that a social institution is most robust when it is fully institutionalized, broad in scope, and high quality. This is true for verbal communication in French; with German, English, and Italian having gaps in only one dimension each. Verbal communication in Romansh, however, has gaps in all dimensions, making it a less robust institution overall according to our propositions.

If we wanted to assess multiple fundamental problems and functions of language within this empirical case, we would have multiple social institutions for each language—for example, we might also investigate written communication in each language. This extension of the analysis raises the question of what it takes for a multi-institutional field to be institutionally robust. Following the pattern of our previous hypotheses, we hypothesize that:

> Proposition 5: A multi-institutional field is more robust as robustness increases in every individual social institution.

This proposition implies that the performance of the whole field is most robust when each institution is robust in all dimensions of the framework. In that case, every social institution serving a function related to a fundamental problem in each language—or each level of analysis—would have to be robust in all dimensions for the language overall to be robust.

When interpreting our results, we return to the multi-step process we used to identify the institutions themselves. The transparency established by that process reminds us that this single analysis does not tell us everything we need to know about languages' survival. Our analysis only explicitly addresses verbal communication in languages. While we can make statements within those boundaries of institutional field, analytical level, and fundamental problem, we must be very cautious beyond them. For example, our analysis of Italian quite obviously does not apply to the scope of that language as spoken in Italy. That does not mean, however, that this type of analysis cannot be used to derive broader implications. On the contrary, this analysis can be used to derive theoretical implications related to the research question—for example that the age of a language is not necessarily related to its level of institutionalization.

4.7. Discussion of the application method

We considered the different analytical implications of using incentives, policies, or organisations as the unit of analysis instead of social institutions. This is a case where a great deal of data is easily available, making economic and political-scientific analyses feasible. The research questions would be different—perhaps focused on the costs and benefits of learning specific languages in Switzerland or whether English should be a national language in Switzerland—but the issue of unobservable variation is smaller here than it would be in other fields. An organisational science approach to this question would focus on how languages are used in Swiss organisations like the government, firms, schools, or others.

Any analysis would observe the relatively more challenging situation for Romansh, but the reasons for and implications of that situation would differ. The institutional approach focuses on the languages themselves and compares a similar shared function. By taking this functional-equivalence approach and following the steps outlined in the method, we also identify a social institution—verbal communication in English—that has the same function as Switzerland's four official languages but may be invisible to a naïve analysis based on Swiss policy, official languages, and formal organisations. Of course no researcher would miss that Swiss people speak English, but this problem is highly relevant in situations where higher complexity might obfuscate social institutions with the same function.

Following the steps and explicitly stating the social field, level of analysis, function, and related problem forces the researcher to specify what problem(s) institutions are solving through common patterns of behaviour. This sets the researcher up to consider alternative methods of solving equivalent problems, facilitating the identification of apparently different but functionally equivalent institutions. Crucially, the method does not automatically identify equivalent institutions—that task is still the researcher's—but it does create a framework that should help shift the focus to institutional functions and key problems rather than structures, organisations, or names.

5. Conclusion and outlook

Although social institutions are a core concept in sociology, it is difficult for empirical researchers to apply the concept without a means of assessing their robustness. This paper develops a framework of key determinants of social-institutional robustness based on institutionalism theory. We also propose a methodological approach for applying that framework in empirical research. This framework represents a first step towards operationalizing the important work of theorists in this field, such that those theories can be tested and empirical research can more fully apply them. This paper begins the process of refining and perfecting an empirical assessment of institutional robustness, through the combination of theoretical and empirical future work.

5.1. Conclusion

Drawing on the institutionalism approaches of Miller (2019), Tolbert and Zucker (1999), and Leslie and Clunan (2011), we argue that social institutions vary in their robustness. Together, the framework and methodological approach help us approach the general sociological question of what it means for a social institution to be robust as it attempts to solve a fundamental problem through collective patterns of behaviour (Coleman, 1990). We present an approach that scholars can apply in any field to facilitate empirical work and underpin discussion of social institutions' characteristics and their comparison across contexts.

Based on this theoretical framework, we derive a number of propositions about what it takes for a social institution to be robust. We propose that institutions are more robust when they are more institutionalized, when they are broader in scope, and when they are of higher quality. Overall, we propose that robust institutions are robust in all three dimensions of the framework simultaneously. After applying the theoretical framework

in an example multi-institutional context, our last proposition states that a robust multi-institutional field is composed of robust institutions. As these propositions include abstract concepts, future research can operationalize them for empirical testing.

We demonstrate and further explain the framework by applying it to the example of language, specifically to the social institutions of verbal communication in the four Swiss national languages. The starting point is the research question of why some languages survive and others do not, then use field-specific theory to proceed through a five-step process of transparently choosing or identifying specific social institutions for analysis. Next, we define the relevant institutional field, the appropriate level of analysis for the research question, and the fundamental problem that relates to a specific function. We identify the cross-context functional equivalent, or key abstract function that solves the fundamental problem, then choose an appropriate empirical case for our research question and use the functional equivalent to identify social institutions carrying out the function in the empirical case. The final step is to apply the framework, using qualitative and quantitative data, to assess the robustness of each institution. The process of systematically identifying and evaluating social institutions makes researchers' choices transparent, enables meaningful comparison across contexts, and uncovers avenues for analysis that may not be obvious otherwise. Most importantly, they enable empirical researchers to apply the work of key institutionalism theorists.

5.2. Limitations, future research, and outlook

This paper develops a theoretical framework for measuring social institutions, along with a corresponding methodological approach. The framework is a necessary precondition for the empirical measurement of social institutions' robustness and their comparisons across contexts, but future validation research is also necessary to test and improve the framework. In addition, we make five propositions on what makes a social institution robust based on the framework that must be tested in future research, ideally in diverse institutional fields. Moreover, identifying the determinants of the changes in the level and scope of institutionalization is open for future theoretical and empirical work. In addition, the theoretical framework does not explain in which case a fundamental problem requires and leads to the development of a social institution and when it does not. The main limitation of the framework is its lack of supporting empirical evidence, which requires future research.

We suggest identifying social institutions based on their social functions, making our approach clearly deductive. Such an approach might miss certain functions depending on the research question and applied theory. Thus an inductive approach starting from the empirical material might complement our approach and help identify appropriate weights for each dimension and property.

From a methodological point of view, we leave the issue of thresholds and cut-offs to the individual researcher's empirical investigations—we do not provide a general characterization of robustness. At this point, we do not believe we have sufficient grounds for defining robustness across institutional fields. Every researcher should clearly define what they qualify as robust in each dimension and property when applying the framework to a specific institutional field. This definition can be done with both qualitative and quantitative data based on field-specific theory and substantive field-knowledge.

Therefore, we encourage researchers who apply the framework to be clear on what their cut-off points and criteria are, and how they arrived at those choices. In cases with fuzzy cut-offs, we recommend robustness testing by showing how the analysis would change with different cut-offs.

In addition, the framework and method are limited to the identification of social institutions and assessment of their robustness. We do not address the relationships among those institutions or institutional configurations. According to Miller (2019), dedicated meta-institutions evolve out of the need for coordinating single institutions. Thus further research is needed to develop a framework for measuring those relationships within meta-institutions. Finally, our approach looks at each institution relative to its function, within a specific empirical case, for one problem, and at one level of analysis. The methodological approach is designed to clarify these boundaries so that interpretation of results is appropriately bounded. Complex research questions will require multiple analyses.

Note

1. Swiss Federal Statistical Office, 2021

Disclosure statement

No potential conflict of interest was reported by the authors.

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