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RESEARCH ARTICLE

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The U-shaped effect of logic multiplicity on organizational performance: Evidence from the US healthcare industry

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Abstract

We investigate the effect of logic multiplicity on organizational performance and hypothesize that logics may impact performance in view of their sheer number. We further propose that the market logic embedded in the for-profit legal form can positively moderate the impact of multiple logics on performance. To explore this empirically, we gathered panel data for 336 California general acute care hospitals whose performance can be broadly identified as their ability to *provide quality healthcare* and measured via their risk-adjusted death rates. The study confirms our hypotheses and suggests that, once the heterogeneous nature of logics is accounted for, their sheer number plays a role in explaining the residual variance, because increasing means-related logic multiplicity may reshape the way logics interact and ultimately impact performance. We contribute to the literature on institutional logics by providing a view of logics multiplicity instrumental to the improvement of organizational performance.

KEYWORDS

institutional theory, logic multiplicity, organizational performance, u-shaped relationship

INTRODUCTION

Current environmental, social, and technological trends are shaking up organizations and creating multiple pressures on their capabilities and business models (Pache & Santos, 2010). Most research on the impact of these pressures on organizations draws on the concept of institutional logics (Grant, Garavan, & Mackie, 2020), the patterns of assumptions, values, and prescriptions that determine what is meaningful and legitimate for organizations (Thornton & Ocasio, 1999).

Institutional logics influence either organizational goals or the means to achieve them (George et al., 2021; Pache & Santos, 2010, 2013). Research has suggested that when multiplicity pertains to logics that deal with organizational overarching goals, it typically causes harsh conflicts that act at the level of organizations' purposes, identity, and values (Pache & Santos, 2010), eventually disrupting performance (Lee, Adbi, & Singh, 2020). Less clear is the impact of logic multiplicity on organizational performance when logics influence the means through which organizations pursue their overarching goals, thus influencing organizational strategies, practices, and operations (Besharov & Smith, 2014; Pache & Santos, 2013).

Results linking logic multiplicity related to organizational means and performance are mixed. Although some scholars have found that multiple means-related logics may engender contradictory guidelines for organizational functioning (Hesse, Kreutzer, & Diehl, 2019), thereby hindering performance (Lee, Adbi, & Singh, 2020), others have suggested that innovations (Jay, 2013), as well as broader resource bases (Zhao & Wry, 2016), may spring from logic multiplicity (Durand & Jourdan, 2012), eventually benefiting organizational performance (Capo & Rullani, 2022; Mongelli et al., 2019; Ramus, Vaccaro, & Berrone, 2021). These mixed results might be due to the attention most previous research paid to specific cases of organizations embodying only two different logics, focusing mainly on the relative compatibility of their prescriptions (e.g., Pache & Santos, 2013; Smith & Smith & Besharov, 2019; for exceptions, see Goodrick & Reay, 2011; Jancsary et al., 2017).

Despite the concept of logic *multiplicity* naturally evoking scenarios where logics may be many, and where organizations may "experience a multiplexity of different pressures from a plurality of institutional logics" (Greenwood et al., 2011, p. 357), research has not investigated the way in which a varied number of logics might impact performance in view of their *sheer number* (Goodrick & Reay, 2011), regardless of the compatibility of their constituting elements. For example, imagine two organizations, both embodying one logic into their organizational goal, but where the first organization relies only on one means-related logic to achieve this goal, and the other on five different means-related logics. The differences in the way the two organizations function and manage tensions will certainly depend on the heterogeneity and compatibility of the guidelines for functioning provided by the logics involved but also on the fact that the first organization has to cope with two logics only, whereas the second needs to deal with six logics altogether (Greenwood et al., 2011).

This paper is, to the best of our knowledge, the first to disentangle how the number of logics, regardless of their heterogeneity, influences organizational performance. Specifically, we ask the following research question: *What is the impact of the sheer number of logics incorporated by an organization on its performance?*

To properly address this research question, we crucially control for the heterogeneity of logics by introducing in our regressions variables that capture the presence of a certain logic rather than others within the set of logics embodied in each organization.

Having established this general result, we investigate if the characteristics of key logics (i.e., their *nature*) shape the interplay between other logics (Lee & Lounsbury, 2015). We specifically focus on the logic that is embedded in the legal form of an organization (Jay, 2013; Pache & Santos, 2013), as legal forms provide the material and symbolic means that shape how priorities are set and decisions are made (Delaney & Huselid, 1996), thus influencing how strategies are defined (Jay, 2013) and resources are allocated (Pache & Santos, 2013). Accordingly, we ask a second research question: *How do logics embedded in an organization's legal form influence the interaction between other logics?*

To address our research questions, we focused on the US healthcare industry for two reasons. First, research has shown that hospitals' main goal relates to the healthcare logic (Cappellaro, Tracey, & Greenwood, 2020; White & Dandi, 2009) but is influenced by several means-related logics. Second, hospitals in the United States show variance in legal form, as they may have alternatively a for-profit, public, or nonprofit status, which might be associated with the market, the state, and civil society logic, respectively (Jay, 2013; Scott et al., 2000; Vickers et al., 2017). In particular, empirically we focus on the effects on performance of the market logic vis-à-vis the state and civil society logics, as studies in the sector have given a prominent role to for-profit-related considerations (e.g., Devaraj & Kohli, 2003).

We conduct our investigation using panel data from 2009 to 2014 for 336 California general acute care hospitals. We examine the impact of multiple means-related institutional logics on these hospitals' performance in their main goal of providing healthcare (Bolon, 2005; Miller & French, 2016). We capture the latter as patients' survival rates computed as the complement to 100 of the risk-adjusted death rate (a measure accounting for pre-existing health problems putting patients at greater risk of death), a standard measure of hospitals' performance in healthcare research (Devaraj & Kohli, 2003).

We find that, after controlling for the heterogeneity of the logics at play, increasing the number of means-related logics initially has a detrimental effect on hospital performance, but the effect becomes a beneficial one when the set of incorporated logics becomes larger. Therefore, logic multiplicity has a curvilinear effect on organizational performance, supporting our first hypothesis.

Our results also support our second hypothesis, as we find that the market logic embedded in the for-profit legal form (Jay, 2013) plays a "catalytic" role, "greasing the wheels" of logic multiplicity and thus positively moderating its impact on performance.

These findings make several contributions. First, we contribute to the institutional logic literature (Thornton & Ocasio, 1999; Yan, Ferraro, & Almandoz, 2019), suggesting that the tensions provoked by higher logic multiplicity come to be outweighed by the opportunities this condition generates and showing how logics can be both a source of constraints and opportunities for organizations (Battilana et al., 2015; Smith & Tracey, 2016). Second, our work extends research by showing that some logics, given their specific characteristics (Yan, Ferraro, & Almandoz, 2019), play a key role in moderating the interplay among constellations of other logics, either hindering or enhancing their complementarity (Lee & Lounsbury, 2015). In our case, we find that a logic particularly focused on the efficiency and effectiveness of decision making, and supporting innovation and creativity may have a key role in "greasing the wheels" of other logics' interaction, favoring the positive effect logics multiplicity has on organizational performance.

THEORY AND HYPOTHESES

Logic multiplicity, organizing tensions, and performance

Institutional logics provide the taken-for-granted set of prescriptions, values, and assumptions (Friedland & Alford, 1991) that influence organizations by defining acceptable goals and the means (Grant, Garavan, & Mackie, 2020)—practices and strategies—to achieve them (Greve & Zhang, 2017; Pache & Santos, 2010). These

differences may make decision-making processes more contentious and create divergent internal dynamics or "organizing tensions" (Battilana & Lee, 2014; Smith, Gonin, & Besharov, 2013) that have adverse effects on organizational performance (Battilana et al., 2015).

Qualifying the negative effect of logic multiplicity on organizational tensions

How logics negatively influence organizational functioning depends significantly on whether they influence the overarching goals pursued by an organization (Purdy & Gray, 2009), or the different means to achieve these goals (Dunn & Jones, 2010). Logics embodied in an organization's goals influence it at an ideological level because "goals are expressions of the core system of values and references of organizational constituencies and are, as such, not easily challenged or negotiable" (Pache & Santos, 2010, p. 460). Disagreements among logics at this level may cause intractable ideological tensions (Durand & Paolella, 2013), which can lead to the disruption of the organization's overarching performance (Battilana & Lee, 2014). Alternatively, tensions at the level of means-related logics are reflected in disagreements among strategies, operations, and practices that are relevant for organizational functioning (Pache & Santos, 2010). Although these means-related tensions can threaten organizational overarching performance and survival (Pache & Santos, 2013), logics that are manifested in organizational means are likely to clash in ways that can be considered "milder" (Greenwood et al., 2011), as they are not threatening "the whole understanding of what the organization is about" (Pache & Santos, 2010, p. 29).

Moreover, logics may have a stronger or weaker influence on organizational performance depending on the patterns of resource dependence they determine (Besharov & Smith, 2014). The less the organization depends on the resources provided by elements of one particular logic, the less influential that logic will be (Yan, Ferraro, & Almandoz, 2019). When only a few logics are at play, the organization depends on tangible and intangible resources borrowed from the adherents to these few logics, who will accordingly wield greater influence. In this context, disagreements about which logic to prioritize might give rise to severe tensions, as the prioritization of one logic over another significantly affects the organization's resource dependency pattern (Besharov & Smith, 2014). When logic multiplicity increases, an organization may achieve its goal by drawing on a larger set of resources related to several means-related logics, which, accordingly, can be segmented (Goodrick & Reay, 2011) or ignored (Pache & Santos, 2010) to scale down tensions over resource acquisition and allocation (Jancsary et al., 2017). As such, organizations may benefit from less constraining resource dependence (Besharov & Smith, 2014). This may allow organizations to reduce the tensions caused by multiple logics.

In sum, we argue that the tensions generated by the coexistence of multiple logics diminish performance, but in a milder way when the logics act on organizational means. Moreover, as these means-related logics increase in number, the less constrictive pattern of resource dependency contributes to containing the negative effects of logic multiplicity on performance even more, eventually leveling them off.

Logic multiplicity as a source of innovation

Whereas we argue that multiple means-related logics have negative effects on performance, given the organizing tensions engendered by their divergent prescriptions for action (Greve & Zhang, 2017), we also posit that increasing means-related logic multiplicity allows an organization to have a positive effect on performance due to wider innovation possibilities (Jay, 2013). Indeed, logics are not holistic but comprise "decomposable component parts that can be recombined in different ways" (Goodrick & Reay, 2011, p. 379; Pache & Santos, 2013). Thus, as means-related logic multiplicity increases, so does the set of the logics' decomposable elements, with opportunities for their innovative recombination (Jay, 2013; Lee & Lounsbury, 2015; Martin et al., 2017) generating innovation and change (Stark, 2009) that can sustain performance (Reay & Hinings, 2009).

Our argument is that, by incorporating different means-related logics, organizations increase exponentially[1] the number of opportunities for recombination between the decomposable elements that constitute such logics (Ocasio & Radoynovska, 2016). This might generate positive effects on organizational performance as it widens the set of potential innovations the organization can choose from, thus increasing the probability of making available those that grant higher gains (Levinthal, 1997). This effect is net of coordination costs, which arise only when one specific innovation opportunity is picked: This is the only instance when the elements composing that picked innovation need to be actually organized to realize it for real. In this sense, coordination costs remain contained and specific to the chosen innovation initiative, and are thus unlikely to rise exponentially as innovation opportunities do.

[1]To see how this works, suppose that each logic is composed of two elements and that the organization can embed only one couple of elements. If the organization incorporates only one logic, it can only incorporate the couple of elements of that logic, resulting in only one possible combination. If the organization incorporates two logics, it can adopt the couple of elements from one logic, that from the other logic, or the four couples built taking one element from the first and one from the second logic, six combinations in total. If the organization incorporates three logics, it can add to the possible combinations also those obtained considering the elements of the third logic, resulting in 15 combinations overall. With four logics, these combinations become 28. More in general, the number of combinations of n elements grows exponentially in n.

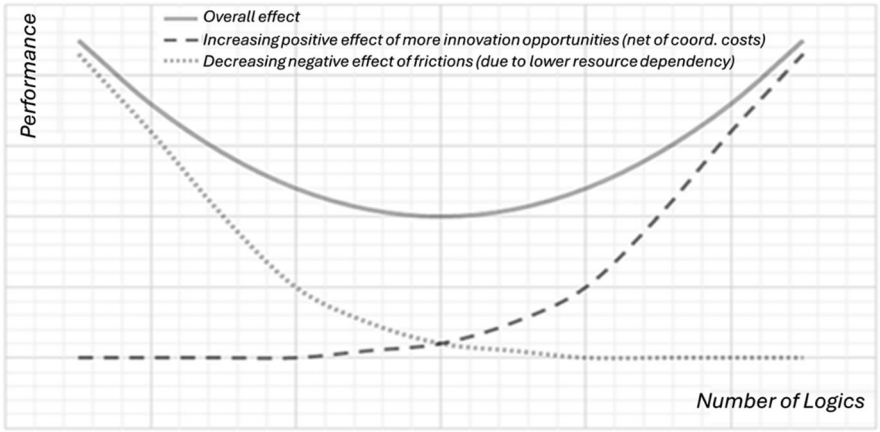

FIGURE 1 Graphical representation of the U-shaped effect as theorized by the authors.

In sum, we theorize an additive cost/benefit relationship (Haans, Pieters, & He, 2016) between means-related logic multiplicity and organizational performance. We posit that although the negative effects of increased means-related logic multiplicity on organizational performance may grow at a decreasing rate and "eventually level off," the positive effects may rise exponentially, resulting in a U-shaped relationship between logic multiplicity and performance.

Figure 1 below graphically shows the two curves resulting from increasing means-related logic multiplicity: The horizontal axis represents the number of means-related logics incorporated by the organization, and the vertical axis shows the performance. The light gray dotted line displays the negative effects of logic multiplicity due to frictions, which, however, decreases in the number of means-related logics due to less constraining resource dependence. The dark gray dashed line displays the increasing innovation opportunities (net of coordination costs) arising from the wider set of possible combinations of means-related logics' elements. The solid (U-shaped) curve represents the sum of the two curves.

Based on our theorizing, we expect the following hypothesis to hold, also once the heterogeneous nature of the means-related logics involved is accounted for

> **Hypothesis 1.** Increasing means-related logic multiplicity within organizations has a U-shaped effect on their overall performance.

Logic multiplicity, legal forms, and organizational performance

While we hypothesize a U-shaped effect of the number of means-related logics on organizational performance, we are also interested in understanding whether some means-related logics, due to their particular role in organizations (Lee & Lounsbury, 2015; Yan, Ferraro, & Almandoz, 2019), shape the interplay between logics (Durand & Paolella, 2013), either positively or negatively moderating how the number of logics impacts performance (Yan, Ferraro, & Almandoz, 2019). In this vein, we argue that the different institutional logics associated with the three legal forms—the market logic for the for-profit form (Cappellaro, Tracey, & Greenwood, 2020), the civil society logic for the nonprofit form (Jay, 2013), and the state logic for the public form (Jay, 2013)—moderate the impact of means-related logic multiplicity on organizational performance in different ways.

As suggested by Pache and Santos (2013), the logic incorporated in the legal form not only symbolizes organizations' institutional linkages but also substantively influences how priorities are defined and decisions are made. Legal forms implicitly provide the symbolic and material tools that shape organizational governance (Spear, Cornforth, & Aiken, 2009), which, in turn, dictate how priorities are set and decision-making processes unfold (Ebrahim, Battilana, & Mair, 2014).

Although we acknowledge cases of hybrid legal forms, as in the case, for instance, of public–private partnerships (Perkmann, McKelvey, & Phillips, 2018), organizations usually relate to one specific legal form: for-profit, nonprofit, or public, and adopt the relative logic as their reference point.

The for-profit form shows the characteristics of the market logic (Jay, 2013) that prescribes an orientation toward profit and faceless, efficient decision-making processes (Thornton, Ocasio, & Lounsbury, 2012). While we acknowledge that the market logic does not necessarily and always benefit performance per se, especially when profit-seeking is combined with the pursuit of social impact (Battilana & Lee, 2014) such as what happens in healthcare, we suggest that these features may ease the interplay among other means-related logics, eventually positively moderating the impact of logic multiplicity on organizational performance. The faceless and goal-oriented nature of the market-oriented governance mechanism typical of the for-profit legal form can induce decision makers to set priorities and make decisions prioritizing efficiency and effectiveness, in this way inviting pragmatic resolutions of tensions over resource

acquisition and allocation. Moreover, market orientation and prioritization of margin generation typical of market logic (Jay, 2013) can create the conditions to pursue different opportunities for innovation and creativity spurred by the coexistence of multiple logics (Vickers et al., 2017).

The nonprofit legal form incorporates the civil society logic, which dictates an orientation toward solidarity when it comes to defining priorities, and a decision-making process that is democratic in nature rather than faceless, as in the case of the market logic (Jay, 2013), and is designed to let different voices be heard and different interests be represented (Cornforth, 2003). Consequently, in deciding how to allocate resources and exploit opportunities, nonprofit organizations "may be more concerned with effectively meeting the needs of multiple constituents" (Schwenk, 1990, p. 440) and addressing societal needs than with efficiently achieving organizational goals (Mair, Mayer, & Lutz, 2015). Moreover, emphasis on solidarity could impose a pricing strategy less focused on margin generation (Jay, 2013), thus potentially reducing the space for nonprofit organizations to invest in innovative and creative initiatives triggered by logic multiplicity. So we theorize that a governance model based on civil society logic would be less effective in mitigating tensions over resource allocations and could be less effective in the exploitation of opportunities. Finally, the public legal form incorporates the state logic (Jay, 2013), which discounts the effects of higher levels of bureaucracy and complexity (Saz-Carranza & Longo, 2012) and is characterized by an orientation toward public service rather than margin generation. Such complexity may foster inertia, making it difficult to mitigate the tensions engendered by the presence of multiple logics. Given the more elaborate hierarchies (Downs, 1967) and the formalization typical of state logic, decision-making processes might unfold more slowly (Perry & Babitsky, 1986). This might reduce the chances of seizing opportunities created by increased logic multiplicity.

This discussion suggests a specific role of the *for-profit* legal form within the context of logic multiplicity: The market logic implied by such a legal form seems to be better equipped than the state and civil society logics (conveyed by the public and nonprofit legal forms, respectively) for easing the multiplicity of logics and improving organizational performance. As per our reading of the literature described above (Jay, 2013; Thornton, Ocasio, & Lounsbury, 2012), this effect seems independent of the actual number of logics embodied in the organization, easing the interaction between few as well as many logics in the same way:

> **Hypothesis 2.** Being a for-profit rather than a nonprofit or public organization increases for any number of logics the positive effect of logic multiplicity on the organization's overall performance.

DATA AND METHODS

Research setting

In line with previous research that has focused on the healthcare field to study issues related to logic multiplicity (Cappellaro, Tracey, & Greenwood, 2020; Dunn & Jones, 2010), we used hospitals in the United States as an empirical setting to test our hypotheses. These organizations are well suited to our purposes for several reasons. First, since the 1980s, hospitals have moved from a relatively stable to a more competitive and dynamic environment (Chadwick, Hunter, & Walston, 2004; Judge & Ryman, 2001), which has created pressures on their strategic maneuvers and decisions. Nonetheless, this shift has taken place in a context of continuing influence on the part of physicians, which has produced a healthcare system that supports their professional sovereignty (Goodstein, Boeker, & Stephan, 1996) and centered on the provision of quality care (Dunn & Jones, 2010). Thus, although hospital management has undergone significant changes over the last decades (Chadwick, Hunter, & Walston, 2004), hospitals' fundamental goals remain well defined (Dunn & Jones, 2010), as we explain in more detail below when describing our logic identification procedure. Second, although the goal of providing quality healthcare is deeply rooted as the main goal, hospitals are characterized by multiple logics that define their means to achieving the desired health outcomes. Specifically, as posited by extant research "throughout its history, the medical profession has had multiple logics, or multiple ways to define the means by which 'quality care' is best accomplished" (Dunn & Jones, 2010, p. 116). Third, US hospitals are readily sorted according to the three types of ownership: for-profit, nonprofit, and public (White & Griffith, 2010), legal forms that allow us to capture the market, the civil society, and the state logics, as we explain below (e.g., Pache & Santos, 2013).

Data sources

To run our analyses, we initially retrieved information on the death rate from the Agency for Healthcare Research and Quality (AHRQ, a renowned and recognized federal agency) for 360 hospitals over the years 2009–2014. These hospitals were California general acute care hospitals that had at least one patient eligible for inclusion in the inpatient mortality indicators (Office of Statewide Health Planning andDevelopment [OSHPD], 2008) for each of the years considered. By focusing on general acute care hospitals, we ensured that a homogeneous sample of hospitals with the same specialization was retrieved. We enriched this original set of data with information relating to the hospitals' structural characteristics and other contextual variables by merging the dataset with other datasets (retrieved, specifically, from the

California Office of Statewide Health Planning and Development—OSHPD; from the Automated Licensing Information and Report Tracking System—ALIRTS; from the Joint Commission of Healthcare Organizations; the National Center for Charitable Statistics; and the California State Association of Counties). As, for some of our data sources, we could not retrieve information on some of the hospitals, our final sample consisted of an unbalanced panel with data on 336 hospitals.

Dependent variable

Survival rate

Our aim is to evaluate the effect of the number of means-related logics on organizational goal-related performance, which in our case is delivering quality healthcare, that we measure in terms of "survival rate." We followed previous studies (DesHarnais et al., 1988; Devaraj & Kohli, 2003) and used the mortality rate as an indicator of hospitals' performance. Because the death rate may be affected by patients' pre-existing health problems, our dependent variable is built on the risk-adjusted death rate, averaged across all procedures and conditions. This measure "accounts for pre-existing health problems of patients that put some patients at greater risk of death" and provides "a transparent and easy way to understand assessment of each hospital's performance" (AHRQ IMI 2008, p. 12). It thus enabled us to "level the playing field and allow fair comparisons across hospitals" (AHRQ IMI Report 2009) regardless of the hospitals' patient selection criteria (e.g., regarding insurance). In other words, our dependent variable is normalized for patients' pre-existing health problems. To facilitate interpretation, we transformed the mortality rate into a survival rate, defined as the complement to 100 of the risk-adjusted death rate. This gave us a measure that correlated positively rather than negatively with the performance construct, making interpretation of our results easier.

Independent variables

We used two independent variables: *Number of logics*, capturing the number of logics incorporated by a hospital, and its interaction with the for-profit legal form *Profit* × *Num. logics*.

Number of logics

To capture the extent of logic multiplicity, we adopted the same additive approach that Laursen and Salter (2006) used in the context of open innovation, and counted the number of logics at play within an organization. Accordingly, we created the variable *Number of logics*, computed by adding to the goal-related logic—healthcare—all the means-related logics incorporated by each hospital, including the logic associated with the legal form. This is because each logic influences the activities, processes, and interactions within the hospitals and thus has an impact on the way other logics interact and, eventually, on hospitals' overarching performance (i.e., survival rate).

To verify the way in which we captured the logics incorporated within hospitals, and particularly to validate the logics in action in the empirical setting of the California healthcare system, we engaged in a process of *post-hoc confirmation* (Becker, Rullani, & Zirpoli, 2021; Lincoln & Guba, 1985; Ungson, James, & Spicer, 1985), characterized by semistructured interviews with individuals having previous work experience and different roles and tenures in hospitals in California. Appendix S2 provides details about our informants, the protocol used for interviewing them, a table describing the key elements constituting each logic, and quotes from interviews showing how these elements are substantiated in the California health care system.

Specifically, we identified the presence of the healthcare as the goal-related logic, and of the "Community," "Teaching," "Research," "State," "Market," and "Civil society" as means-related logic. Below we detail the characteristics of each logic, one by one, while in Table 2A.2 Appendix S2, we provide details about the specific elements constituting each logic.

First, for every hospital in our dataset, we included the *healthcare* logic as the goal-related logic, following previous research on healthcare (Dunn & Jones, 2010; Nigam & Ocasio, 2010), which suggests that the main overarching goal of hospitals is to provide healthcare services. Indeed, as recognized by the California Hospital Association,[2] "California's hospitals are dedicated to providing high-quality, safe, and person-centered health care." Consistent with this definition, and notwithstanding differences in individual characteristics, US hospitals share the same core mission and serve the main goal of advancing and improving the health of individuals (Bai, 2013). This mandate is crucial to hospitals' goals (Miller & French, 2016), it is clearly stated in the American Hospital Association's mission statement and is usually reflected in hospitals' mission statements (Bolon, 2005; White & Dandi, 2009). This overarching goal has also been confirmed by the informants from the validation interviews we conducted. Informants agreed that "no matter where you're going to get your care …. You should still be able to get quality care … And that should be the same across the board" (Informant 3). Along the same lines, another informant defined quality care as a priority, as follows: "[Quality care] means providing quality care, thus giving patients the care that they

[2]CHA, Clinical Care Definition (https://calhospital.org/issue/clinical-care/).

need at the most affordable cost that's possible. So, you know, giving them the best care they need, not just the bare minimum" (Informant 1). This holds true especially considering the primary obligation incumbent on physicians to serve patients' interests in the decisions they make on how to manage resources for the provision of services (see the Principles of Medical Ethics by the American Medical Association).

Second, building on previous literature (Thietart, 2009), we also considered the possible presence of a *teaching* logic. This logic entails giving systematic training and education to students to allow them to acquire the knowledge and skills (Kodeih & Greenwood, 2014) needed to be ready for a profession, in our case the medical profession (Dunn & Jones, 2010). Hospitals that serve as teaching and education providers are integral to the clinical education of both undergraduate and graduate students in diverse health professions. In these hospitals, the engagement of educators, including hospitalists and attending physicians, goes beyond mere coordination, or even knowledge dissemination, and the educational role is shared across multiple actors rather than by single teachers, making medical educators "clinical coaches." In sum, educators are required to teach on a broad spectrum of topics while simultaneously providing effective patient care (Wiese, 2010). The center of these activities is the residency medical program. We used it to capture the presence of the teaching logic. Residents are in fact students who have completed medical school and are training in a medical specialty, which will require them to be instructed on basic techniques and procedures. As our informants confirmed, in a teaching hospital with a residency program, residents are involved in training through exposure to "a wide variety of diseases … with an increase in responsibilities" (Informant 7). The aim is to train students to become "self-sufficient doctors … following a progressive learning curve … a process in which you [as supervisor] give the resident more responsibility and you have to gauge what their comfort is and where they are and where they're struggling. So, you have to figure out how to teach them without 'spoon feeding' everything to them so that they can learn these skills and progress" (Informant 1). Accordingly, we considered the teaching logic to be present in hospitals that met the following two requirements: (a) having activated an "approved residency medical program" and (b) having a nonzero number of residents expressed in terms of full-time equivalent (FTE), where 40 h of direct service equals 0.1 FTE.

Third, following key studies in healthcare (Dunn & Jones, 2010), we also considered the presence of a *research* logic, specifically for hospitals that implement fellowship programs, which require students to have completed their residency to engage in a subspecialty track, during which research capabilities are enhanced (Poduval, 2016) to enable fellows to specialize in a specific medical subfield and eventually publish their research. Research deepens the understanding of health and disease mechanisms, enhances patient and disease treatment efficacy, and improves healthcare delivery (Pinsky, 2000). Accordingly, in hospitals with a fellowship program, there is a "very high emphasis, for instance, on research, clinical research, bench work research, basic science research. So, there's definitely a very high emphasis on that … Fellows have access to the labs of certain attending students that they work with, that they can join in on and work on projects to try to further the field to get publications" (Informant 1). Accordingly, we considered the logic of research to be present in hospitals that (a) had activated an "approved fellowship medical program" and (b) had a nonzero number of fellows expressed in terms of FTE, where 40 h of direct service equals 0.1 FTE. It is important to note that we consider the logic of research to be different from that of teaching, as these logics represent distinct practices whose professionals attribute different weights when doing their job (Bucher & Strauss, 1961). As such, if "practices recursively enact and reproduce the general understanding or logic from which they draw meaning" (Smets et al., 2015, p. 936), then we conclude that the practices of teaching and research are derived from the two distinct related logics, in line with extant literature (Kodeih & Greenwood, 2014; Lounsbury & Pollack, 2001; Toubiana & Zietsma, 2017).

Fourth, we acknowledged recent research suggesting that hospitals are often expected to provide their own communities with social benefits (Bai, 2013; Poku, Hellmann, & Sharfstein, 2017; Shortell, Washington, & Baxter, 2009), thus incorporating elements of community logic (Lee & Lounsbury, 2015). According to this logic, organizations should build strong ties with the stakeholders of the communities in which they operate and be primarily oriented toward addressing these stakeholders' specific needs (Almandoz, 2012). As a result, we wanted to focus on hospitals that can really relate to the community logic as integrating community outreach and engagement as fundamental aspects of their organizational identity and culture (Fricke, 2020). As the American Hospital Association's definition of "community hospitals" was too broad[3] for our purposes, we detected the presence of the *community* logic (Almandoz, 2012) using a dummy variable that marks both "rural community hospitals" (hospitals reported as rural on the ALIRTS webpage) and "other community hospitals" (hospitals whose name includes the word "community"). We expected both types of hospitals to incorporate community logic as we conceive it for specific reasons: rural

[3]It encompasses all the "nonfederal, short-term general, and other special hospitals. Other special hospitals include obstetrics and gynecology; eye, ear, nose, and throat; long term acute-care; rehabilitation; orthopedic; and other individually described specialty services. Community hospitals include academic medical centers or other teaching hospitals if they are nonfederal short-term hospitals and exclude those hospitals that not accessible by the general public, such as prison hospitals or college infirmaries."

hospitals because, well beyond providing healthcare services, they also contribute to the overall economic and social fabric of rural communities, and are vital within their regions to meet both healthcare needs and economic and social stability (Goldsteen et al., 2020; Holmes et al., 2006); hospitals whose name includes the word "community hospital" because extant literature on hospitals' brand identity underlines the need to clearly specify a consistent identity in terms of values, concepts, functions, and processes (Vollmers, Miller, & Kilic, 2010) when targeting community type of needs (Khosravizadeh et al., 2021). So the "community" word in the hospitals' naming can be considered as an explicit designation choice, and an indicator of the relevance of the community of reference for their own characterization and identity. Additionally, being non-federal hospitals (*AHA Hospital Statistics* 2018), *these hospitals are likely to be more closely linked to the local surroundings and aimed to serve the community therein* (Shi & Singh, 2010). *This incorporation of community logic was confirmed by our informants. One medical doctor confirmed the importance for staff of a community hospital (as per our definition)* "to be out there and help as much as we can and even in different ways" (Informant 2), while another described how such hospitals "definitely try to keep ties with the community. They have lots of satellite clinics to make it easy for individuals to get access to healthcare. They definitely do free clinics, health drives, farmer's markets, whatever to really try to engage the community" (Informant 1).

Fifth, all organizations incorporate logics related to their legal form (Pache & Santos, 2013) and so do hospitals. We thus considered the three logics of the market, civil society, and state corresponding to three legal forms: *for-profit*, *nonprofit*, and *public* (Bai, 2013; Jay, 2013; Pache & Santos, 2013). We identified the following: (i) for-profit form hospitals that operated, as reported in the OSHPD dataset, by an "investor individual," "investor-partnership," or "investor-corporation"; (ii) non-profit form hospitals operated by "church," "non-profit corporation," or "non-profit other"; and (iii) public form hospitals categorized under the label "state," "district," or "county/city." In our sample, these forms are exhaustive of the population of hospitals and are mutually exclusive. Research suggests that these three logics and associated legal forms influence organizations' governance in terms of the organizations' decision-making processes and how they define their priorities (Cappellaro, Tracey, & Greenwood, 2020; Jay, 2013). Our informants confirmed these theoretical assumptions. They agreed that the for-profit form, associated with the market logic, allows for easier resource acquisition, because "in private [for-profit hospitals], there's probably faster ability to find more resources in general" (Informant 3). They also confirmed that the market logic, as incorporated in the legal form, would allow for quicker and more efficient decision-making compared to public hospitals: "In for profit hospitals the system works a lot quicker. With public institutions or government institutions, at least in the U.S., there's so much bureaucracy and so many different levels that you need to get through" (Informant 1). Emphasis on margin generation also differentiates for-profit hospitals from both nonprofit and public hospitals. While for-profit hospitals focus mainly on revenue generation, "public hospitals go into their financials and their budgeting assuming that they will either make zero profit or come in at a loss … While non-profit hospitals, even if they're not trying to make a profit per se, they're still focused on 'how do we make the biggest impact?" (Informant 4).

In discussing the presence of these logics for each hospital, we recognized that every combination of logics risks over-representing a certain logic, and could confound the effect of the number of logics with that of the overrepresented one. We thus checked whether each value of *Number of logics* corresponded to a diversified set of combinations of logics. Table 1 describes the combinations among the logics for each number of logics and reports the number of observations for each combination. Sets relative to 2, 3, and 4 logics ensure enough diversity for our argument to hold. As the combination with all 5 logics corresponds to just a few observations, we performed a series of robustness checks by grouping it with the 4-logic combination. We also noted that, although some combinations had more observations than others, the distributions were not concentrated (e.g., the distribution of combinations for 3 logics was bimodal).

Although capturing the presence of the logic of healthcare, legal forms, and community is quite straightforward, the way we operationalized the teaching and research logics may be less sharp. We therefore decided to also consider an alternative, less restrictive definition for these two logics. Initially, we detected the teaching (or research) logic by means of two criteria: (a) an approved residency (or fellowship) medical program and (b) FTE > 0. Because criterion (b) is "nested" in (a), we performed a sensitivity analysis by relaxing (b) and detecting teaching and research only via (a). Table 2 reports the possible combinations and the number of observations for each combination resulting from this sensitivity analysis. Under these relaxed conditions, the number of 4-logic combinations increases, allowing a sensitivity test also for our previous concern on the heterogeneity of combinations for each value of *number of logics*. Also, the distribution of the number of observations for each combination is not highly skewed.

Profit × Num. Logics

Because we posited that the market logic stemming from the for-profit legal form may positively moderate the repercussions of means-related logic multiplicity on organizational performance, we considered as our second

TABLE 1 Combinations of logics.

Number of Logics	2	2	2	3	3	3	3	3	3	4	4	4	5
Type of Logic													
Health-Care	x	x	x	x	x	x	x	x	x	x	x	x	x
Market (for-profit legal form)	x			x	x								
Civil society (nonprofit legal form)		x				x	x			x	x		x
State (public legal form)			x					x	x			x	
Teaching				x		x		x		x	x	x	x
Research											x	x	x
Community					x		x		x	x			x
Number of obs per combination	299	627	95	39	77	190	257	63	176	8	71	24	6

TABLE 2 Combinations of logics (sensitivity analysis).

Number of Logics	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	5
Type of Logic																			
Health-Care	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Market (for-profit legal form)	x			x	x	x												x	
Civil society (nonprofit legal form)		x					x	x		x			x	x	x				x
State (public legal form)			x						x		x	x				x	x		
Teaching				x			x				x		x	x		x	x	x	x
Research					x				x	x				x	x	x		x	x
Community						x		x				x	x		x		x		x
Number of obs per combination	280	513	89	45	2	77	274	256	1	13	66	172	8	88	1	26	4	11	6

Note: Circles denote new combinations of logics emerging as a result of the sensitivity analysis.

independent variable *Profit* × *Num. logics*, the interaction between the for-profit dummy *Profit* and the variable *Number of logics*.

Within our sample, each hospital had one and only one legal form (either for-profit, nonprofit, or public). Thus, having one legal form or another does not impact the number of logics per se, increasing the reliability of our test on the effect of the associated logic (market, civil society, or state) on the relationship between logic multiplicity and organizational performance.

Control variables

Area

Heterogeneity in organizational performance may be due to geographical differences. We therefore accounted for the area where our organizations are located by using three dummies: *Central* for hospitals located in Central California, *Northern* for those in Northern California, and *Southern*, which we excluded as the most populous category representing Southern California.

Age

Consistent with previous studies that considered age as a factor impacting organizational performance (Durand & Coeurderoy, 2001), we controlled for the age of our sample hospitals, captured by the number of years since the date the hospital was licensed (California Code of Regulation, 70103 section, chap. 22).

Size

As organizational size may also impact performance (D'Aunno, Succi, & Alexander, 2000), consistent with extant research (Bai, 2013; Goodstein, Gautam, & Boeker, 1994), we took the number of beds as our measure of hospital size. We included as a control the

variable *Beds*, defined by the OSHPD as "the average daily complement of beds (excluding nursery bassinets) physically existing and actually available for overnight use, regardless of staffing levels" (OSHPD, p. 2).

Accreditation

Performance may be influenced by the quality of physicians and healthcare services offered. Certifications are useful in gauging the quality of the hospital according to the usual standards of the field (Tabrizi, Gharibi, & Wilson, 2011). To capture this dimension, we constructed the variable *Accreditation* by manually checking each hospital's possession of the "gold seal of approval" from the Joint Commission of Healthcare Organizations (JCHO) whose certificate represents healthcare quality (The Joint Commission, 2017). We created a dummy variable equal to 1 when the hospital was accredited by the JCHO and 0 otherwise.

Year

Because differences in performance may result from year specificities, we created dummies for each year in our sample.

Hospitals in the county

Organizational performance may be influenced by competition, gauged by the number of proximate organizations within the same scope of action. Thus, we included the variable *Hospitals in county*, which measures the number of general acute care hospitals in each California county. As this variable is strongly correlated with county population (99%), it also serves as a control for the size of the county.

Trauma

Having a trauma center may also affect a hospital's performance. A trauma center may enable staff to treat patients in need of emergency care quickly and thus avoid transfer to other units (which may lower their chances of survival). Additionally, the presence of trauma centers could be connected to the presence of an increased engagement in teaching or research (Bai, 2013). Because this possibility was not already factored into the measure of our dependent variable (*Survival rate*), we controlled for it by the dummy variable *Trauma*, taking value 1 if the hospital has a trauma center, irrespective of its designation, and 0 otherwise.

Table 3 provides descriptive statistics and a correlation matrix for the data.

TABLE 3 Descriptive statistics and correlation matrix ($N = 1932$).

	Variables	*Mean*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	*Survival rate*	95.3	4.91	1													
2	*Number of logics*	2.53	0.61	−0.11	1												
3	*Profit*	0.22	0.41	0.09	−0.22	1											
4	*Age*	48.08	15.96	−0.05	0.13	−0.09	1										
5	*Beds*	231.24	168.74	0.11	0.12	−0.16	0.18	1									
6	*Central*	0.08	0.27	−0.08	0.1	−0.11	−0.09	−0.03	1								
7	*Northern*	0.37	0.48	−0.07	0.01	−0.29	−0.01	−0.11	−0.23	1							
8	*Hospitals in county*	26.56	30.87	0.11	−0.03	0.29	0.15	0.18	−0.22	−0.52	1						
9	*Accreditation*	0.77	0.42	0.11	−0.07	−0.02	−0.07	0.25	−0.04	0.04	−0.05	1					
10	*Trauma*	0.2	0.4	−0.03	0.18	−0.13	0.12	0.32	−0.04	0.09	−0.08	0.11	1				
11	*Year* 2009	0.17	0.37	0	−0.01	0	−0.04	0	0.01	0.01	0.01	0.01	−0.02	1			
12	*Year* 2010	0.17	0.37	−0.03	0.01	0	−0.01	−0.01	0	0	0	0.02	0.01	−0.2	1		
13	*Year* 2011	0.17	0.37	−0.02	0	0	0.01	0	0	0	0	0.01	0	−0.2	−0.2	1	
14	*Year* 2012	0.17	0.37	0	0	0	0.04	0.01	0	0	0	0.01	0.02	−0.2	−0.2	−0.2	1
15	*Year* 2013	0.16	0.37	0.03	−0.01	−0.01	0.05	0.01	−0.01	0.01	−0.02	0.03	0.03	−0.2	−0.2	−0.2	−0.2

Main models, tests, and alternative specifications

We hypothesized that the relationship between the number of logics and performance is U-shaped (Hypothesis 1) and that the market logic associated with the for-profit legal form positively moderates such a relationship (Hypothesis 2) shifting its turning point. To test our hypotheses, we first plotted the variables of interest. The graphs below show the curvilinear effect we posited in Hypothesis 1 (Figure 2), which also holds true in the sensitivity analysis obtained by applying a less restrictive definition of teaching and research (Figure 3). Both figures show that for-profit hospital observations tend to be clustered in the upper part of the chart, suggesting that market logic allows the combined logics to attain higher levels of performance, in line with Hypothesis 2.

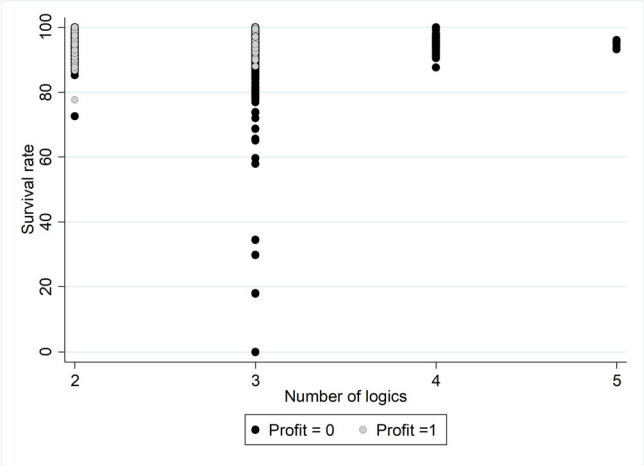

FIGURE 2 Curvilinear relationship between survival rate and number of logics (main analysis).

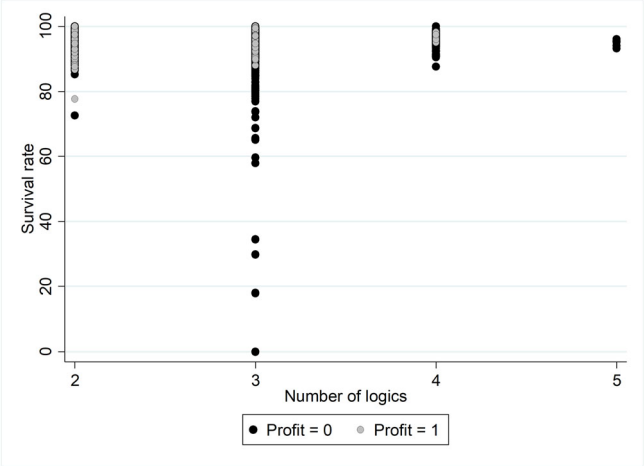

FIGURE 3 Curvilinear relationship between survival rate and number of logics (sensitivity analysis).

Despite being intuitively useful, descriptive charts such as Figures 1 and 2 are not enough to reach a solid conclusion. We thus performed a series of random-effect generalized least squares (GLS) panel data regressions. The random effect is appropriate because our explanatory variable (*Number of logics*) takes much longer to change than the time frame of our sample, as it is almost always time-invariant, precluding fixed effect estimation. The random effect is useful for diminishing endogeneity, a problem that we also tackle by lagging regressors by 6 months and using, as a robustness check, the instrumental variables approach. Our dependent variable is bounded, taking values from 0 to 100, and Figures 2 and 3 show that its distribution is concentrated in the upper part of the chart. This would make ordinary least squares (OLS) unsuitable for estimation due to the possibility of predictions lying outside the bounds. However, only a few observations (about 3%) lie on the bounds, our main regressor *Number of logics* has very limited support (2–5), and predictions per se are not relevant to our analysis. In such a context, the use of a linear model such as GLS has the advantage of allowing direct and unambiguous interpretation of the coefficients (Ai & Norton, 2003; Hoetker, 2007), and we can always use generalized linear models (GLM) to make sure that our main results also hold when using one of the best-suited models to deal with bounded dependent variables. Indeed, the GLM estimates (specified within the Bernoulli family, linked to logit, and clustering errors for hospitals) confirm our GLS regressions, both for our main and for our sensitivity analysis. Estimates run using Tobit, which deals with the limits imposed on the dependent variable, are also in line with our findings.

Finally, in our GLS, we tackled biases in the error terms, including both those due to the bounded dependent variable and other possible problems (e.g., heteroscedasticity), by estimating robust standard errors. Additionally, we checked for multicollinearity through correlation tables (which we have excluded, all correlation coefficients being lower than 0.52) and tested for serial autocorrelation by means of the Wooldridge test. As shown in Table 3, the test reports no evidence of serial autocorrelation (p value = 0.158). We also ran a pooled OLS regression, and all the results are consistent with the main analyses, certifying that the time structure is not crucial to capturing the effects we focus on.

The first column of Table 4 shows the results for Model 1, including only controls. Model 2 includes our main independent variable, *Number of logics*, and Model 3 its squared term, *Logics*^2. Model 4 explores the effect of the interaction term *Profit* × *Num. logics*, while Model 5 also does this but adds the quadratic term *Logics*^2, as well. As explained in the theory section, we do not go as far as including the interaction between the quadratic term and the variable *Profit*, as our Hypothesis 2 theorizes a turning point shift and not a flattening or steepening of the curve (Haans, Pieters, & He, 2016).

TABLE 4 Regression results.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	95.03***	96.53***	100.67***	96.83***	102.58***
	(0.55)	(0.59)	(1.70)	(0.61)	(1.97)
Number of logics		−0.62**	−3.64**	−0.76***	−4.92***
		(0.19)	(1.18)	(0.22)	(1.38)
Logics^2			0.55**		0.74**
			(0.20)		(0.23)
Profit × *num. logics*				1.14*	1.55**
				(0.47)	(0.51)
Profit	0.72**	0.56*	0.52*	−2.05	−3.07**
	(0.26)	(0.26)	(0.26)	(1.09)	(1.17)
Age	−0.02*	−0.02*	−0.02*	−0.018*	−0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Beds	0.00***	0.00***	0.00**	0.00***	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Accreditation	0.88	0.81	0.75	0.85	0.79
	(0.47)	(0.46)	(0.45)	(0.47)	(0.46)
Hospitals in county	0.01	0.01	0.01	0.01	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Central	−1.38**	−1.24**	−1.30**	−1.25**	−1.33**
	(0.47)	(0.47)	(0.47)	(0.48)	(0.47)
Northern	−0.38	−0.39	−0.40	−0.41	−0.43
	(0.35)	(0.35)	(0.35)	(0.35)	(0.35)
Trauma	−0.56	−0.43	−0.44	−0.42	−0.44
	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)
Year 2009	−0.20	−0.21	−0.21	−0.21	−0.21
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
Year 2010	−0.43	−0.43	−0.43	−0.43	−0.43
	(0.39)	(0.39)	(0.39)	(0.39)	(0.39)
Year 2011	−0.33	−0.34	−0.35	−0.34	−0.34
	(0.31)	(0.30)	(0.30)	(0.30)	(0.30)
Year 2012	−0.04	−0.06	−0.06	−0.06	−0.06
	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)
Year 2013	0.22	0.20	0.19	0.20	0.19
	(0.37)	(0.37)	(0.37)	(0.37)	(0.37)
Sample size	1932	1932	1932	1932	1932
*R*2 overall	0.0479	0.0539	0.0556	0.0558	0.0589
R^2 between	0.1516	0.1718	0.1736	0.1793	0.1848
Wooldridge test prob > *F*	0.1580	0.1580	0.1580	0.1580	0.1580
Wald χ^2	52.73	56.37	60.30	57.79	63.40
Prob > χ^2	0.00	0.00	0.00	0.00	0.00

Note: Standard errors in parentheses. As we are dealing with data whose variation is largely cross-sectional rather than γ longitudinal (please see the section on the instrumental variable approach for an explanation). We report also the R2 between observations, which is more informative than the overall R2.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

RESULTS

Table 4 reports the results of the regression analyses.

As Table 4 shows, our main independent variable, *Number of logics*, reports significant coefficients across all models. This is true both when fitting a linear model

(Models 2 and 4) and when allowing for a curvilinear fit (Models 3 and 5): in Models 2 and 4, the coefficients of the linear term are, respectively, −0.62 (with a p value <0.01) and −0.76 (with a p value <0.001); in Models 3 and 5, they are, respectively, −3.64 (with a p value <0.01) and −4.92 (with a p value <0.001). These results are consistent with our main intuition, namely that, up to a certain point, logic multiplicity should be negatively correlated with organizational performance.

Hypothesis 1 suggests a U-shaped relationship between logic multiplicity and performance, captured by the variable *Logics*^2. The coefficients and p values for *Logics*^2 in Model 3 (coefficient = 0.55, with a p value <0.01) and Model 5 (coefficient 0.74, with a p value <0.01) support this prediction. Moreover, the difference in the magnitude of the coefficients for the linear term between the linear models (2 and 4) and the quadratic models (3 and 5) makes it clear that while the general trend is positive, the curvilinear fit allows us to disentangle the effects of the linear and quadratic terms. To certify the U-shaped behavior of the relationship, we followed Haans, Pieters, and He (2016) and verified the three tests they report, namely, a significant coefficient for *Logics*^2, a slope that is sufficiently steep at both ends of the data range (confirmed by a *utest*), and a turning point that is situated well within the data range (3.31, close to the midpoint of the range of 2–5).

Hypothesis 2 predicted that being a for-profit rather than a nonprofit or public organization would strengthen the positive side of the relationship between logic multiplicity and organizational performance by easing the interaction among logics. Models 4 and 5 provide evidence for this: The interaction term *Profit* × *Num. logics* shows a coefficient equal to 1.14 (with a p value <0.05) in Model 4 and a coefficient 1.55 (with a p value <0.01) in Model 5. Moreover, the catalytic role of the for-profit legal form becomes evident when looking at the progression from Models 1 to 5. Comparing the coefficients of the variable *Profit* across these models, it is possible to see that while its coefficient is positive when considered alone (Models 1 to 3), it turns negative as soon as the interaction term *Profit* × *Num. logics* is introduced (Model 4, −2.05) and remains negative (and now significant) when *Logics*^2 is also included (Model 5, −3.07, with a p value <0.01). When decomposing the overall positive effect of *Profit* observed in Models 1–3 into its components in Models 4 and 5, *Profit*'s negative coefficient is more than compensated by the positive effect of the *Profit*'s interaction with the number of logics even at the lower boundary of the *Number of logics*' support (i.e., 2). That is, *Profit*'s overall positive influence on performance is exerted by increasing the positive effect of incorporating more logics, that is, by playing the role of catalyst within each hospital's system of multiple logics.

Figures 4 and 5 show, respectively, the effect for both our main and our sensitivity analysis of the presence of the for-profit legal form on the curve derived to test Hypothesis 1.

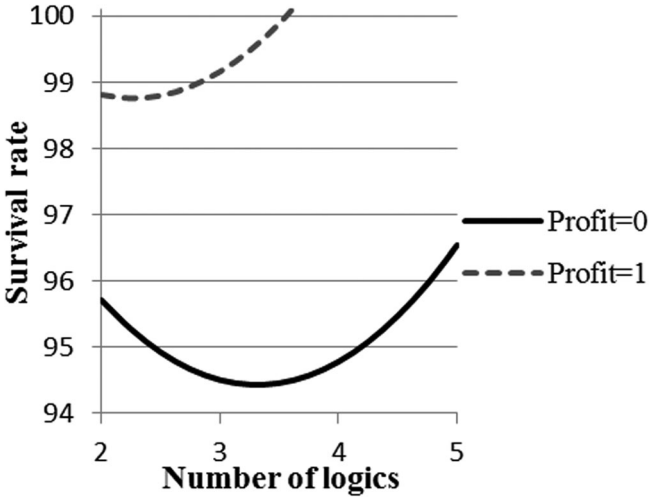

FIGURE 4 The effect of interaction on the parabola. Coefficients from Model 5 (main analysis).

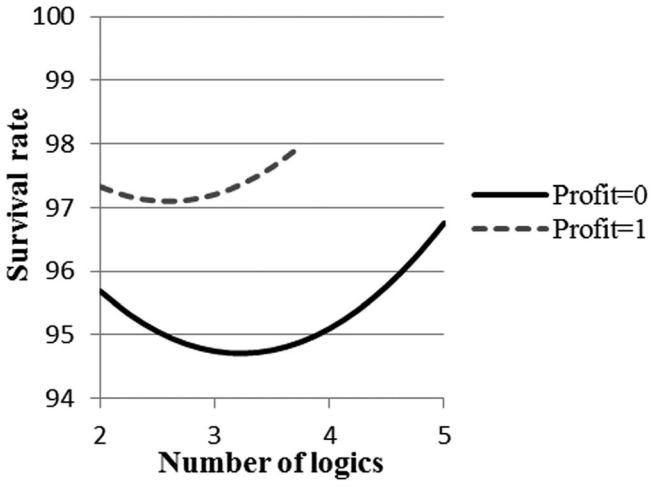

FIGURE 5 The effect of interaction on the parabola. Coefficients from Model 5 (sensitivity analysis).

In order to be used as a moderator, our variable *Profit* should be independent of the number of logics. This is likely the case, as the three legal forms are mutually exclusive for each hospital. This means that the presence (or absence) of market logic leaves the total number of logics unchanged. To see if being a for-profit hospital may have an influence on the number of logics incorporated, we plot, for both our main analysis and our sensitivity exercise, the distribution of the number of logics occurring in hospitals with for-profit, nonprofit, and public legal forms (in percentage). The result (Figure S1A.1, Appendix S1) is that these distributions follow a similar pattern, confirming that our main regressor and our moderator are independent from each other.

Accounting for logics' heterogeneity

Tables 1 and 2 show that, when logics amount to a certain number, this corresponds to multiple and heterogeneous combinations, minimizing the risk of overrepresenting a specific mix over others. To make perfectly sure it is the number of logics, and not their characteristics or complementarities, that generates the results, we performed a series of checks that directly accounted for the nature of the logics. Our regressions explicitly disentangle the effect of the number of the logics from that of their heterogeneity, controlling for the latter and thus assuring that the results relative to the former are robust on multiple levels. We first ran our main model (Model 5), excluding *Number of logics* and *Profit* × *Num. logics* and introducing as key regressor a dummy standing for one logic at a time. Our aim was to verify whether the survival rate was influenced specifically by one given logic, which would then drive our results. The analysis shows that this is not the case, as the community logic and the logics connected to the legal form (market, civil society, and state) are all significant both in our main analysis and in the sensitivity analysis, and in this last case, also the teaching logic becomes significant. In a second step, we ran Model 5, including the main independent variables *Number of logics* and *Profit* × *Num. logics*, and add as controls the dummies representing the different logics (community, market, civil society, state, teaching and research), again one at a time. The dummy included captures the presence of a specific logic in each organization's mix, allowing us to single out the effect of the number of logics per se. The results are consistent with our hypotheses, the only noteworthy point being that when controlling for *research*, the coefficient of *Logics*^2 is non-significant, but turns significant again in our sensitivity analysis, where both teaching and research are more broadly defined. Results are reported in Appendix S1, Table S1A.1.

Finally, we included a dummy representing a specific combination of logics at a time as a control in our main model. We ran a series of regressions, each including one dummy capturing one specific combination of logics among the seven most diffused ones (present in 39 hospitals or more). Our results also hold in this case (see estimates in Appendices S1 and S2).

Robustness checks

As a first additional robustness check, we verified the existence of a U-shaped curve in more depth. We first generated dummies relating to the different combinations of logics. Specifically, we generated dummies for 2-logic combinations, for 3-logic combinations, and for 4- and 5-logic combinations. We ran our main regression excluding the largest category (2-logic combinations) and including the 3-logic and 4–5-logic combinations. We found a significant negative coefficient for the dummy representing combinations of 3 logics and a negative but not significant coefficient for the 4–5-logic combinations. Because the excluded dummy corresponds to 2 logics, the coefficients prove that there is a significant negative effect on *Survival rate* when moving from 2 to 3 logics, but no significant effect when moving from 2 to 4–5. This confirms the U-shaped curve of the relationship between *Number of logics* and *Survival rate*.

We also investigated more in-depth the effect of our operationalization of the teaching and research logics. As they might be less easy to capture, we included a sensitivity analysis to see if the results could be extended to the case in which teaching and research logics are defined in a broader sense (the presence of a program, with no reference to people enrolled). We then wanted to try to see if the results would also hold when these logics were defined in a narrower sense. So, we calculated the average number of residents and fellows in the sample (which are 22.15 and 3.69, respectively) and considered the teaching and research logics to be present only when the hospital has at least the average number of residents (i.e., = or >22.15) and the average number of fellows (i.e., = or >3.69). We ran the main regressions considering this narrower operationalization of these two logics and found that the results did not change. So, our results are confirmed with both definitions of these two logics. Eventually, we performed another robustness check where we merged the research and the teaching logics into one overarching logic containing elements of both. Our results are confirmed by and large also in this case.

A further robustness check was inspired by Hoetker (2007), who, in the case of moderation by a dummy, suggested splitting the sample into two and verifying whether the resulting regressions relate in the way predicted by the theory. In our case, this means verifying that the turning point we obtain when estimating our parable for for-profit hospitals leads to a higher performance than the turning point estimated for the subsample, including both the nonprofit and public forms. Although our theory holds that the profit legal form affects only the linear term of the relationship between the number of logics and organizational performance, and thus, according to Haans, Pieters, and He (2016), we should interact the *profit* variable only with the linear term (and not the quadratic), the check we wanted to run here was possible only if we estimated a quadratic polynomial for both subsamples. When considering for-profit hospitals, the maximum number of logics in that subsample is 3 for our main analysis and 4 for our sensitivity analysis, so we could run this check only for the latter. In this analysis, the estimated coefficients for the two parables in the two subsamples allow for the computation of their turning points: 3.24 for the nonprofit/public sample and 2.85 for the for-profit sample, corresponding to a shift on the performance axis from 94.4 (nonprofit/public sample) to 96.7 (for-profit sample). We can thus confirm our results in this case.

Eventually, to deal more extensively with endogeneity, we estimated the same regressions as Model 5 but via the instrumental variable approach. The analysis developed in Appendix 3 shows our results are confirmed, suggesting that endogeneity should not be a concern.

DISCUSSION

Our research investigates the impact of means-related logic multiplicity on organizational performance. The results suggest that the sheer number of means-related logics does indeed impact performance, even when controlling for their characteristics. Whereas initially increasing the number of logics jeopardizes performance associated with a goal-related logic, a further increase in the multiplicity of means-related logics can trigger an exponential rise in the possibilities for innovative recombination of the logics' components. While the results regarding the impact of the specific number of logics on performance are idiosyncratic to our empirical context, they nonetheless suggest that logic multiplicity eventually traces a U-shaped relationship with organizational overarching performance. In addition, we evaluate whether the logic incorporated in an organization's legal form moderates the relationship between logic multiplicity and performance associated with the overarching goal. We find that the market logic, embedded in the for-profit legal form and in view of its characteristics, has a catalytic effect on multiple logics, positively moderating their impact on performance associated with the goal-related logic independently of the initial level of logic multiplicity.

Generalizing our findings beyond the specific case of medical hospitals, we contribute to the extant discussion on the impact of institutional complexity on organizational performance. Although some scholarly work argues that institutional complexity inevitably brings disruptive tensions that hinder performance (Kraatz & Block, 2008; Wry & Zhao, 2018), other research has theorized that the instantiation of multiple logics within organizations can bring benefits (Besharov & Smith, 2014; Mongelli et al., 2019). Some scholars have empirically demonstrated that, when well-managed, the disruptive tensions generated by institutional complexity can be transformed into productive opportunities to boost performance (Battilana et al., 2015; Ramus, Vaccaro, & Brusoni, 2017). Our findings build on and contribute to this research stream by suggesting that tensions can be downplayed and opportunities exploited by increasing institutional complexity. We advance that these benefits are conditional on the organization pursuing a clear, legitimized goal, linked to a specific logic. Moreover, we further propose that institutional complexity should include a sufficient number of logics enabling the reduction of resource dependency (Battilana et al., 2015) and triggering the exploitation of innovation potential (Jay, 2013). Finally, our findings suggest that the positive effects of institutional complexity are magnified whenever one of the means-related logics brings elements associated with efficient and effective decision making, innovation, and creativity, which ease the recombination of elements associated with other logics. Below, we elaborate on these insights and explain how they contribute to extant research.

Unraveling the complex relationships among multiple logics

Our findings provide a more comprehensive understanding of the concept of logic multiplicity and its instantiation at the organizational level, thus addressing the call for work on the consequences of increased institutional complexity (Micelotta, Lounsbury, & Greenwood, 2017; Ramus, Vaccaro, & Berrone, 2021). By showing what the impact of increased means-related logic multiplicity on organizational performance is, we extend previous research, which has mainly treated logics as more or less compatible based on their core features (Yan, Ferraro, & Almandoz, 2019). We suggest that, once these features are accounted for, the number of logics plays a role in explaining the residual variance, because increasing means-related logic multiplicity may reshape the way logics interplay, either hindering or enabling their complementarity. By unraveling the curvilinear effect of such multiplicity on performance, we also provide a more thorough understanding of the complex relationship among logics. Although scholars have suggested that institutional logics are "mutually dependent, yet also contradictory" (Friedland & Alford, 1991, p. 250), thus advancing that their interaction is not univocal, there is still little research disentangling the unfolding of this complex relationship. We contribute to filling this gap by showing that the very same logics that appear to be contradictory, given their negative effect on organizational performance, can instead be mutually reinforcing and support performance. One of the reasons why this may happen is that as means-related logic multiplicity increases, logics form more complex constellations (Goodrick & Reay, 2011), and their elements may be recombined in multiple ways so that the opportunities created outweigh the conflict and coordination costs that may be triggered by the coexistence of multiple logics. In this sense, we advance that means-related logic multiplicity may turn tensions into opportunities.

Further, we identify a new configuration of the relationships among multiple logics, where one logic serves as a "catalyst," facilitating the interaction among the other logics. Previous research has shown that some dominant logics can play this "catalytic role," associating dominance with logics' role in society (Lee & Lounsbury, 2015) and their institutionalization at the field level (Yan, Ferraro, & Almandoz, 2019). We build

on and extend this line of inquiry, suggesting that the logic incorporated in an organization's legal form also shapes the way other logics interact. In particular, we show that when incorporated in the legal form and therefore shapes the decision-making process (Mair, Mayer, & Lutz, 2015), market logic seems to play this catalytic role: Its positive effect on hospitals' performance is exerted by easing the interplay among the means-related logics incorporated in hospitals' strategies and practices. This is due to the fact that incorporating a market logic—in view of its elements (e.g., focus on efficiency and effectiveness, scouting for innovation opportunities and fostering creativity)—may allow for smooth and fast decision making and for efficient resource management, hence "greasing the wheels" of the interaction between other means-related logics incorporated within the organization, thus triggering a positive effect on the organizational goal of maximizing the survival rate.

So what matters is less the effect of market logic per se and more its effect on the interplay among other logics. This is because its elements (e.g., striving for efficiency and effectiveness, looking for innovation opportunities, etc.) have the indirect benefit of enhancing compatibility among other logics within the organization, producing an overall positive effect on organizational performance. In our view, this empirical evidence is theoretically interesting for two reasons: First, it advances research on the existence of some logics that filter the way organizations perceive and react to the elements of other logics (Lee & Lounsbury, 2015); and second, it shows that the interplay with other logics can transform the overall impact that a logic has on organizational functioning, in this way offering additional insights into the modular and unstable nature of institutional logics.

Logic multiplicity and organizational functioning

A growing stream of research has investigated how institutional logics permanently influence organizations and are incorporated into their goals and practices (Pache & Santos, 2010; Smith & Besharov, 2019). Scholars have acknowledged the challenges posed by multiple logics for organizations, the tensions they generate, and their adverse effects on performance (Ramus, Vaccaro, & Berrone, 2021), and have investigated how these tensions can be managed and performance sustained (Smith & Besharov, 2019). We complement this research, by showing that an increase in the logics embedded in organizational functioning can reduce resource dependencies and instead create opportunities for innovation, thus reducing tensions and sustaining performance.

Combining our findings with previous research (McPherson & Sauder, 2013; Venkataraman et al., 2016), we suggest that institutional logics can be used as strategic resources (Durand et al., 2013) and combined to create complex constellations (Goodrick & Reay, 2011; Lee & Lounsbury, 2015) to minimize constraining resource dependency patterns and exploit innovation opportunities. Moreover, the integration of a logic focused on efficiency and effectiveness of decision making may ease the interaction among other logics and boost the positive effect of institutional complexity on performance.

It is important to note that the benefit of incorporating different means-related logics may be the result of agentic behavior, meant to foster performance, rather than adapting to changes in environmental conditions or shifts in societal pressures. Indeed, organizations may deliberately decide to include in their portfolio different means-related logics, hence developing diverse ways to achieve their goal and exercise agency in managing multiple logics to affect organizational performance. Logics are not just tools organizations incorporate in response to specific institutional demands emerging in the environment; logics may represent strategic options that organizational actors can act upon even in the absence of exogenous pressures. The possibility for organizations to strategically leverage the incorporation of multiple logics means that such organizations, rather than being passive recipients of a plurality of institutional pressures, are agentic actors (Battilana & D'Aunno, 2009) with considerable scope for maneuvering logics to produce the desired performance outcomes. Of course, for this to hold, logics multiplicity must be substantial and not the result of decoupling strategies (Pache & Santos, 2013), pretending a logic is present (possibly for "washing" purposes, Berrone, Fosfuri, & Gelabert, 2017) when it is not.

Policy and managerial implications

Our study also has some implications for healthcare policy and for healthcare management. The delivery of healthcare is a complex process (Nembhard & Tucker, 2011), due to the tensions and coordination efforts that arise within and beyond the core activity of care provision (Bergeron, 2018); this is even truer after the COVID-19 pandemic has posed strains on healthcare systems worldwide (Healthcaredive, 2020), with subsequent impacts on organizations and their practices.

We provide some novel insights for both policy makers and managers. First, by observing the impact of means-related logic multiplicity on hospitals' performance, we enlarge the portfolio of strategies currently available to policy makers to better direct interventions. The U-shaped relationship between such multiplicity and performance that emerges from our findings shows the possibility to leverage heterogeneity rather than focus. This is a straightforward contribution, because healthcare systems have gone the opposite direction, holding "focus" as a key to face the strong concerns over costs and quality (Roberts, 2001). For example, literature has highlighted

how the promotion of centers of excellence in healthcare provision may enhance the efficacy of healthcare services for specific medical areas with the objective of affecting large portions of the population and maximizing the impact of care, through policies or dedicated actions (Elrod & Fortenberry, 2017). We underline how the already needed proper assembly by policy makers, through dedicated interventions to enhance value creation, can be further guided by an emphasis on means-related logic combination.

Second, scholars and practitioners have long debated the benefits for healthcare organizations of engaging in teaching, research, or contribution to the community, suggesting that some activities are beneficial, whereas others are detrimental to the optimal provision of care (Ayanian & Weissman, 2002). We suggest that managers can also benefit from a careful crafting of tools and practices to achieve fruitful combinations of logics. We highlight the importance of fast and efficient decision-making processes based on clear priorities (e.g., maximizing survival rates) pursued via the activation of means-related logics, which then become tools used to strategically direct the institutional environment of the hospital.

In sum, our study suggests maintaining the focus on healing people by leveraging—rather than fearing—institutional complexity.

Boundary conditions, limitations, and future research

Our work and the results emerging from it are tied to a series of boundary conditions and limitations. First, we focus our analysis on hospitals, which constitute a specific category of organizational arrangement, characterized by one goal-related logic and different means-related logics, and in which the relations between said logics may be direct, or indirect through moderation. This boundary condition suggests that our results can be transferred to contexts that are characterized by similar arrangements and thus are populated by organizations that incorporate one goal-related logic and different means-related logics (Ebrahim, Battilana, & Mair, 2014; Pache & Santos, 2013) and/or incorporate a logic acting on the legal form that moderates the relationship between other logics (Greenwood et al., 2010; Mitzinneck & Besharov, 2019), such as socially responsible investment (e.g., Yan, Ferraro, & Almandoz, 2019), social enterprises (e.g., Drencheva et al., 2023), family-led and regionally embedded organizations (Greenwood et al., 2010), universities (e.g., Compagnucci et al., 2020), and so on.

Also, our study presents some limitations that could provide interesting avenues for future research to explore. First, a finer-grain analysis adopting variables we were unable to retrieve in the dataset we explored, such as top management experience, may play a role in the ability to handle different means-related logics. Tenured organizational members might be more capable than non-experienced ones to manage the presence of multiple logics and thus limit negative effects on organizational performance. Second, controlling for the characteristics of logics allowed us to see the extent to which different configurations of logics affect organizational performance differently. Future research should dig deeper into this point, unveiling the complex patterns of how both different logics and their heterogeneous combinations relate to organizational performance, exploring the dynamics that such variation triggers. Third and relatedly, we posited that the positive effects shown on organizational performance as logic multiplicity increases may be triggered by the potential to recombine elements of logics in multiple ways. While this is likely the explanation behind our results, future research may use other methodological approaches to dig deeper into the mechanisms of such recombination and make them emerge more clearly and distinctly. Fourth, our research objective moved us to focus on an empirical setting characterized by a single, well-defined, goal-related logic (i.e., healthcare) and multiple means-related logics (i.e., teaching, research, and community) and to look at the impact of means-related logic multiplicity on organizational performance. However, there may be contexts where the dominant goal-related logic taken as a reference point within an organization may be challenged and contested by diverse actors. Future research may explore similar research questions in such more complex settings characterized by the presence of different goal-related logics, with scholars focusing on different measures of performance and/or adopting a qualitative research approach to dig into the contestation and tensions that emerge around the primacy of one logic over others.

Also, we adopted a conservative approach and limited our theorizing and analysis to the moderating impact of market logic (associated with the for-profit legal form) in the relationship between logic multiplicity and organizational performance. Future research may investigate whether and under which circumstances other logics (e.g., different legal forms, such as public, nonprofit, or hybrid legal forms) may ease or complicate the way in which multiple logics interact.

Fifth, our investigation focuses on organizations characterized by a specific range of logic multiplicity (our independent variable takes values from a minimum of two to a maximum of five logics). However, in other contexts, it may be the case that organizations incorporate even more logics, and thus may reach a point when an additional logic renders logic multiplicity very complex to manage, triggering negative effects on organizational performance. Future research may focus on these contexts as interesting starting points to explore the contingencies that render logic multiplicity unproductive.

Finally, our data do not allow us to rule out the possibility that the hospitals' management applies some

strategic behavior to artificially improve performance. Although we believe these behaviors are likely marginal, due to the risk of being stigmatized and punished if caught, we cannot rule out that a minimal part of the effect we observe can be due to that. Future research may gather other data to try to disentangle whether the results obtained here are driven by strategic and ceremonial, rather than substantial, behaviors.

CONCLUSION

Institutional logics permeate the life of organizations (Greenwood et al., 2011; Thornton, Ocasio, & Lounsbury, 2012). Their impact may have both negative and positive outcomes and may vary with their intrinsic characteristics (Besharov & Smith, 2014) and with the organization's ability to manage the potential tensions generated by the coexistence of multiple logics (Ramus, Vaccaro, & Brusoni, 2017). The relationship between organizations and the logics that they incorporate is more intricate, however, in that it depends on the nature, the role, and the number of the logics involved. We agree that organizations exposed to multiple institutional pressures and incorporating divergent logics in their core functioning may need to devise specific mechanisms and processes to harmonize them. However, we also posit that, by playing strategically with increasing logic multiplicity, organizations may attain positive effects on performance. By adopting this perspective, we aim to stimulate further debate on the growing stream of research on the influence of logic multiplicity on organizational functioning and performance.

AUTHOR CONTRIBUTIONS

Francesca Capo: conceptualization; data collection and analysis; writing—original draft; writing—review and editing. Francesco Rullani: conceptualization; data analysis; methodology; writing—review and editing. Tommaso Ramus: conceptualization; writing—original draft; review and editing. Federica Brunetta: research setting; methodology; conceptualization; review and editing.

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CONFLICT OF INTEREST STATEMENT

All authors declare they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data are available on reasonable request from the authors.

ETHICS STATEMENT

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee, as well as with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants whose identifying information is included in this article.

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REFERENCES

Ai, C. & Norton, E.C. (2003) Interaction terms in logit and probit models. *Economics Letters*, 80(1), 123–129. Available from: https://doi.org/10.1016/S0165-1765(03)00032-6

Almandoz, J. (2012) Arriving at the starting line: the impact of community and financial logics on new banking ventures. *Academy of Management Journal*, 55(6), 1381–1406. Available from: https://doi.org/10.5465/amj.2011.0361

Ayanian, J.Z. & Weissman, J.S. (2002) Teaching hospitals and quality of care: a review of the literature. *The Milbank Quarterly*, 80(3), 569–593. Available from: https://doi.org/10.1111/1468-0009.00023

Bai, G. (2013) How do board size and occupational background of directors influence social performance in for-profit and non-profit organizations? Evidence from California hospitals. *Journal of Business Ethics*, 118(1), 171–187. Available from: https://doi.org/10.1007/s10551-012-1578-x

Battilana, J. & D'Aunno, T. (2009) Institutional work and the paradox of embedded agency. In: Lawrence, T.B., Suddaby, R. & Leca, B. (Eds.) *Institutional work: actors and agency in institutional studies of organizations*. Cambridge: Cambridge University Press, pp. 31–58.

Battilana, J. & Lee, M. (2014) Advancing research on hybrid organizing–insights from the study of social enterprises. *Academy of Management Annals*, 8(1), 397–441. Available from: https://doi.org/10.5465/19416520.2014.893615

Battilana, J., Sengul, M., Pache, A.C. & Model, J. (2015) Harnessing productive tensions in hybrid organizations: the case of work integration social enterprises. *Academy of Management Journal*, 58(6), 1658–1685. Available from: https://doi.org/10.5465/amj.2013.0903

Becker, M.C., Rullani, F. & Zirpoli, F. (2021) The role of digital artefacts in early stages of distributed innovation processes. *Research Policy*, 50(10), 104349. Available from: https://doi.org/10.1016/j.respol.2021.104349

Bergeron, B.P. (2018) *Performance management in healthcare: from key performance indicators to balanced scorecard*. New York: Taylor & Francis.

Berrone, P., Fosfuri, A. & Gelabert, L. (2017) Does greenwashing pay off? Understanding the relationship between environmental actions and environmental legitimacy. *Journal of Business Ethics*, 144(2), 363–379. Available from: https://doi.org/10.1007/s10551-015-2816-9

Besharov, M.L. & Smith, W.K. (2014) Multiple institutional logics in organizations: explaining their varied nature and implications. *Academy of Management Review*, 39(3), 364–381. Available from: https://doi.org/10.5465/amr.2011.0431

Bolon, D.S. (2005) Comparing mission statement content in for-profit and not-for-profit hospitals: does mission really matter? *Hospital*

Topics, 83(4), 2–9. Available from: https://doi.org/10.3200/HTPS.83.4.2-10

Bucher, R. & Strauss, A. (1961) Professions in process. *American Journal of Sociology*, 66(4), 325–334. Available from: https://doi.org/10.1086/222898

Capo, F. & Rullani, F. (2022) Being for profit, non-profit, or both? The risk advantage of social enterprises in the face of shocks. In: Vaccaro, A. & Ramus, T. (Eds.) *Social innovation and social enterprises. Toward a holistic perspective*. Springer.

Cappellaro, G., Tracey, P. & Greenwood, R. (2020) From logic acceptance to logic rejection: the process of destabilization in hybrid organizations. *Organization Science*, 31(2), 415–438. Available from: https://doi.org/10.1287/orsc.2019.1306

Chadwick, C., Hunter, L.W. & Walston, S.L. (2004) Effects of downsizing practices on the performance of hospitals. *Strategic Management Journal*, 25(5), 405–427. Available from: https://doi.org/10.1002/smj.383

Compagnucci, L. & Spigarelli, F. (2020) The Third Mission of the university: A systematic literature review on potentials and constraints. *Technological Forecasting and Social Change*, 161, 120284.

Cornforth, C. (2003) *The governance of public and non-profit organizations*. London and New York: Routledge.

D'Aunno, T.A., Succi, M. & Alexander, J.A. (2000) The role of institutional and market forces in divergent organizational change. *Administrative Science Quarterly*, 45(4), 679–703. Available from: https://doi.org/10.2307/2667016

Delaney, J.T. & Huselid, M.A. (1996) The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39(4), 949–969. Available from: https://doi.org/10.2307/256718

DesHarnais, S.I., Chesney, J.D., Wroblewski, R.T., Fleming, S.T. & McMahon, L.F. (1988) The risk-adjusted mortality index: a new measure of hospital performance. *Medical Care*, 26(12), 1129–1148. Available from: https://doi.org/10.1097/00005650-198812000-00004

Devaraj, S. & Kohli, R. (2003) Performance impacts of information technology: is actual usage the missing link? *Management Science*, 49(3), 273–289. Available from: https://doi.org/10.1287/mnsc.49.3.273.12736

Downs, A. (1967) *Inside bureaucracy*. Boston: Little, Brown.

Drencheva, A., Au, W.C. & Li Yew, J. (2023) Working for impact, but failing to experience it: Exploring individuals' sense making in social enterprises. *Business & Society*, 62(7), 1458–1495.

Dunn, M.B. & Jones, C. (2010) Institutional logics and institutional pluralism: the contestation of care and science logics in medical education, 1967–2005. *Administrative Science Quarterly*, 55(1), 114–149. Available from: https://doi.org/10.2189/asqu.2010.55.1.114

Durand, R. & Coeurderoy, R. (2001) Age, order of entry, strategic orientation, and organizational performance. *Journal of Business Venturing*, 16(5), 471–494. Available from: https://doi.org/10.1016/S0883-9026(99)00061-0

Durand, R. & Jourdan, J. (2012) Jules or Jim: alternative conformity to minority logics. *Academy of Management Journal*, 55(6), 1295–1315. Available from: https://doi.org/10.5465/amj.2011.0345

Durand, R. & Paolella, L. (2013) Category stretching: reorienting research on categories in strategy, entrepreneurship, and organization theory. *Journal of Management Studies*, 50(6), 1110–1123.

Durand, R., Szostak, B., Jourdan, J. & Thornton, P.H. (2013) Institutional logics as strategic resources. In: *Institutional logics in action, part A*. Leeds, England: Emerald Group Publishing Limited, pp. 165–201.

Ebrahim, A., Battilana, J. & Mair, J. (2014) The governance of social enterprises: mission drift and accountability challenges in hybrid organizations. *Research in Organizational Behavior*, 34, 81–100. Available from: https://doi.org/10.1016/j.riob.2014.09.001

Elrod, J.K. & Fortenberry, J.L. (2017) Centers of excellence in healthcare institutions: what they are and how to assemble them. *BMC Health Services Research*, 17(1), 15–24.

Fricke, K., 2020. Community hospital trends and lessons [white paper]. Available at: www.hdrinc.com/sites/default/files/2020-09/community-hospital-trends-lessons-hdr_0.pdf

Friedland, R. & Alford, R. (1991) Bringing society back in: symbols, practices, and institutional contradictions. In: Powell, W.W. & DiMaggio, P.J. (Eds.) *The new institutionalism in organizational analysis*. Chicago: University of Chicago Press, pp. 232–263.

George, G., Haas, M.R., McGahan, A.M., Schillebeeckx, S.J. & Tracey, P. (2021) Purpose in the for-profit firm: a review and framework for management research. *Journal of Management*, 49(6), 01492063211006450. Available from: https://doi.org/10.1177/01492063211006450

Goldsteen, R.L., Goldsteen, K. & Benjamin Goldsteen, M.B.A. (2020) *Jonas' introduction to the US health care system*. Springer Publishing Company.

Goodrick, E. & Reay, T. (2011) Constellations of institutional logics: changes in the professional work of pharmacists. *Work and Occupations*, 38(3), 372–416. Available from: https://doi.org/10.1177/0730888411406824

Goodstein, J., Boeker, W. & Stephan, J. (1996) Professional interests and strategic flexibility: a political perspective on organizational contracting. *Strategic Management Journal*, 17(7), 577–586. Available from: https://doi.org/10.1002/(SICI)1097-0266(199607)17:7<577::AID-SMJ828>3.0.CO;2-R

Goodstein, J., Gautam, K. & Boeker, W. (1994) The effects of board size and diversity on strategic change. *Strategic Management Journal*, 15(3), 241–250. Available from: https://doi.org/10.1002/smj.4250150305

Grant, K., Garavan, T. & Mackie, R. (2020) Coaction interrupted: logic contestations in the implementation of inter-organisational collaboration around talent management in the public sector in Scotland. *European Management Review*, 17(4), 915–930. Available from: https://doi.org/10.1111/emre.12404

Greenwood, R., Díaz, A.M., Li, S.X. & Lorente, J.C. (2010) The multiplicity of institutional logics and the heterogeneity of organizational responses. *Organization Science*, 21(2), 521–539.

Greenwood, R., Raynard, M., Kodeih, F., Micelotta, E.R. & Lounsbury, M. (2011) Institutional complexity and organizational responses. *Academy of Management Annals*, 5(1), 317–371. Available from: https://doi.org/10.5465/19416520.2011.590299

Greve, H.R. & Zhang, C.M. (2017) Institutional logics and power sources: merger and acquisition decisions. *Academy of Management Journal*, 60(2), 671–694. Available from: https://doi.org/10.5465/amj.2015.0698

Haans, R.F., Pieters, C. & He, Z.L. (2016) Thinking about U: theorizing and testing U and inverted U shaped relationships in strategy research. *Strategic Management Journal*, 37(7), 1177–1195. Available from: https://doi.org/10.1002/smj.2399

Healthcaredive, 2020. COVID-19 puts unprecedented strain on US health system. Available at: https://www.healthcaredive.com/news/covid-19-puts-unprecedented-strain-on-us-health-system/574275/

Hesse, A., Kreutzer, K. & Diehl, M.R. (2019) Dynamics of institutional logics in a cross-sector social partnership: the case of refugee integration in Germany. *Journal of Business Ethics*, 159(3), 679–704. Available from: https://doi.org/10.1007/s10551-017-3775-0

Hoetker, G. (2007) The use of logit and probit models in strategic management research: critical issues. *Strategic Management Journal*, 28(4), 331–343. Available from: https://doi.org/10.1002/smj.582

Holmes, G.M., Slifkin, R.T., Randolph, R.K. & Poley, S. (2006) The effect of rural hospital closures on community economic health. *Health Services Research*, 41(2), 467–485. Available from: https://doi.org/10.1111/j.1475-6773.2005.00497.x

Jancsary, D., Meyer, R.E., Hollerer, M.A. & Barberio, V. (2017) Toward a structural model of organizational-level institutional pluralism and logic interconnectedness. *Organization Science*, 28(6), 1150–1167. Available from: https://doi.org/10.1287/orsc.2017.1160

Jay, J. (2013) Navigating paradox as a mechanism of change and innovation in hybrid organizations. *Academy of Management Journal*,

56(1), 137–159. Available from: https://doi.org/10.5465/amj.2010.0772

Judge, W.Q. & Ryman, J.A. (2001) The shared leadership challenge in strategic alliances: lessons from the US healthcare industry. *Academy of Management Perspectives*, 15(2), 71–79. Available from: https://doi.org/10.5465/ame.2001.4614907

Khosravizadeh, O., Vatankhah, S., Baghian, N., Shahsavari, S., Ghaemmohamadi, M.S. & Ahadinezhad, B. (2021) The branding process for healthcare centers: operational strategies from consumer's identification to market development. *International Journal of Healthcare Management*, 14(4), 956–964. Available from: https://doi.org/10.1080/20479700.2020.1723881

Kodeih, F. & Greenwood, R. (2014) Responding to institutional complexity: the role of identity. *Organization Studies*, 35(1), 7–39. Available from: https://doi.org/10.1177/0170840613495333

Kraatz, M.S. & Block, E.S. (2008) Organizational implications of institutional pluralism. *The Sage handbook of organizational institutionalism*, 840, 243–275.

Laursen, K. & Salter, A. (2006) Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms. *Strategic Management Journal*, 27(2), 131–150. Available from: https://doi.org/10.1002/smj.507

Lee, M., Adbi, A. & Singh, J. (2020) Categorical cognition and outcome efficiency in impact investing decisions. *Strategic Management Journal*, 41(1), 86–107. Available from: https://doi.org/10.1002/smj.3096

Lee, M.D.P. & Lounsbury, M. (2015) Filtering institutional logics: community logic variation and differential responses to the institutional complexity of toxic waste. *Organization Science*, 26(3), 847–866. Available from: https://doi.org/10.1287/orsc.2014.0959

Levinthal, D.A. (1997) Adaptation on rugged landscapes. *Management Science*, 43(7), 934–950.

Office of Statewide Health Planning and Development (OSHPD) (2008) Technical Note.

Lincoln, Y.S. & Guba, E.G. (1985) *Naturalistic inquiry*. Newbury Park, London, New Delhi: Sage.

Lounsbury, M. & Pollack, S. (2001) Institutionalizing civic engagement: shifting logics and the cultural repackaging of service-learning in US higher education. *Organization*, 8(2), 319–339. Available from: https://doi.org/10.1177/1350508401082016

Mair, J., Mayer, J. & Lutz, E. (2015) Navigating institutional plurality: organizational governance in hybrid organizations. *Organization Studies*, 36(6), 713–739. Available from: https://doi.org/10.1177/0170840615580007

Martin, G., Currie, G., Weaver, S., Finn, R. & McDonald, R. (2017) Institutional complexity and individual responses: delineating the boundaries of partial autonomy. *Organization Studies*, 38(1), 103–127. Available from: https://doi.org/10.1177/0170840616663241

McPherson, C.M. & Sauder, M. (2013) Logics in action: managing institutional complexity in a drug court. *Administrative Science Quarterly*, 58(2), 165–196. Available from: https://doi.org/10.1177/0001839213486447

Micelotta, E., Lounsbury, M. & Greenwood, R. (2017) Pathways of institutional change: an integrative review and research agenda. *Journal of Management*, 43(6), 1885–1910. Available from: https://doi.org/10.1177/0149206317699522

Miller, F.A. & French, M. (2016) Organizing the entrepreneurial hospital: hybridizing the logics of healthcare and innovation. *Research Policy*, 45(8), 1534–1544. Available from: https://doi.org/10.1016/j.respol.2016.01.009

Mitzinneck, B.C. & Besharov, M.L. (2019) Managing value tensions in collective social entrepreneurship: The role of temporal, structural, and collaborative compromise. *Journal of Business Ethics*, 159(2), 381–400.

Mongelli, L., Rullani, F., Ramus, T. & Rimac, T. (2019) The bright side of hybridity: exploring how social enterprises manage and leverage their hybrid nature. *Journal of Business Ethics*, 159(2), 301–305. Available from: https://doi.org/10.1007/s10551-018-4050-8

Nembhard, I.M. & Tucker, A.L. (2011) Deliberate learning to improve performance in dynamic service settings: evidence from hospital intensive care units. *Organization Science*, 22(4), 907–922. Available from: https://doi.org/10.1287/orsc.1100.0570

Nigam, A. & Ocasio, W. (2010) Event attention, environmental sensemaking, and change in institutional logics: an inductive analysis of the effects of public attention to Clinton's healthcare reform initiative. *Organization Science*, 21(4), 823–841. Available from: https://doi.org/10.1287/orsc.1090.0490

Ocasio, W. & Radoynovska, N. (2016) Strategy and commitments to institutional logics: organizational heterogeneity in business models and governance. *Strategic Organization*, 14(4), 287–309. Available from: https://doi.org/10.1177/1476127015625040

Pache, A.C. & Santos, F. (2010) When worlds collide: the internal dynamics of organizational responses to conflicting institutional demands. *Academy of Management Review*, 35(3), 455–476. Available from: https://doi.org/10.5465/AMR.2010.51142368

Pache, A.C. & Santos, F. (2013) Inside the hybrid organization: selective coupling as a response to competing institutional logics. *Academy of Management Journal*, 56(4), 972–1001. Available from: https://doi.org/10.5465/amj.2011.0405

Perkmann, M., McKelvey, M. & Phillips, N. (2018) Protecting scientists from Gordon Gekko: how organizations use hybrids spaces to engage with multiple institutional logics. *Organization Science*, 30(2), 298–318.

Perry, J.L. & Babitsky, T.T. (1986) Comparative performance in urban bus transit: assessing privatization strategies. *Public Administration Review*, 46(1), 57–66. Available from: https://doi.org/10.2307/975443

Pinsky, W.W. (2000) The roles of research in an academic medical center. *The Ochsner Journal*, 2(4), 201–202.

Poduval, J. (2016) Optimizing medicine residency training programs. In: *Advances in medical education, research, and ethics*. United States of America: IGI Global.

Poku, M.K., Hellmann, D.B. & Sharfstein, J.M. (2017) Hospital accreditation and community health. *The American Journal of Medicine*, 130(2), 117–118. Available from: https://doi.org/10.1016/j.amjmed.2016.06.054

Purdy, J.M. & Gray, B. (2009) Conflicting logics, mechanisms of diffusion, and multilevel dynamics in emerging institutional fields. *Academy of Management Journal*, 52(2), 355–380. Available from: https://doi.org/10.5465/amj.2009.37308255

Ramus, T., Vaccaro, A. & Berrone, P. (2021) Time matters! How hybrid organizations use time to respond to divergent stakeholder demands. *Organization Studies*, 42(10), 1529–1555. Available from: https://doi.org/10.1177/0170840619900341

Ramus, T., Vaccaro, A. & Brusoni, S. (2017) Institutional complexity in turbulent times: formalization, collaboration, and the emergence of blended logics. *Academy of Management Journal*, 60(4), 1253–1284. Available from: https://doi.org/10.5465/amj.2015.0394

Reay, T. & Hinings, C.R. (2009) Managing the rivalry of competing institutional logics. *Organization Studies*, 30(6), 629–652. Available from: https://doi.org/10.1177/0170840609104803

Roberts, V. (2001) Managing strategic outsourcing in the healthcare industry. *Journal of Healthcare Management*, 46(4), 239–249. Available from: https://doi.org/10.1097/00115514-200107000-00007

Saz-Carranza, A. & Longo, F. (2012) Managing competing institutional logics in public–private joint ventures. *Public Management Review*, 14(3), 331–357. Available from: https://doi.org/10.1080/14719037.2011.637407

Schwenk, C.R. (1990) Conflict in organizational decision making: an exploratory study of its effects in for-profit and not-for-profit organizations. *Management Science*, 36(4), 436–448. Available from: https://doi.org/10.1287/mnsc.36.4.436

Scott, W.R., Ruef, M., Mendel, P.J. & Caronna, C.A. (2000) *Institutional change and healthcare organizations: from professional dominance to managed care*. Chicago: University of Chicago Press.

Shi, L. & Singh, D.A. (2010) *Essential of the U.S. healthcare system*. Burlington, MA: Jones and Bartlett Publishers.

Shortell, S.M., Washington, P.K. & Baxter, R.J. (2009) The contribution of hospitals and health care systems to community health. *Annual Review of Public Health*, 30(1), 373–383. Available from: https://doi.org/10.1146/annurev.publhealth.032008.112750

Smets, M., Jarzabkowski, P., Burke, G.T. & Spee, P. (2015) Reinsurance trading in Lloyd's of London: balancing conflicting-yet-complementary logics in practice. *Academy of Management Journal*, 58(3), 932–970. Available from: https://doi.org/10.5465/amj.2012.0638

Smith, W.K. & Besharov, M.L. (2019) Bowing before dual gods: how structured flexibility sustains organizational hybridity. *Administrative Science Quarterly*, 64(1), 1–44. Available from: https://doi.org/10.1177/0001839217750826

Smith, W.K., Gonin, M. & Besharov, M.L. (2013) Managing social-business tensions: a review and research agenda for social enterprise. *Business Ethics Quarterly*, 23(3), 407–442. Available from: https://doi.org/10.5840/beq201323327

Smith, W.K. & Tracey, P. (2016) Institutional complexity and paradox theory: complementarities of competing demands. *Strategic Organization*, 14(4), 455–466. Available from: https://doi.org/10.1177/1476127016638565

Spear, R., Cornforth, C. & Aiken, M. (2009) The governance challenges of social enterprises: evidence from a UK empirical study. *Annals of Public and Cooperative Economics*, 80(2), 247–273. Available from: https://doi.org/10.1111/j.1467-8292.2009.00386.x

Stark, D. (2009) *The sense of dissonance: accounts of worth in economic life*. Princeton, NJ: Princeton University Press.

Tabrizi, J.S., Gharibi, F. & Wilson, A.J. (2011) Advantages and disadvantages of healthcare accreditation models. *Health Promotion Perspectives*, 1(1), 1–31. Available from: https://doi.org/10.5681/hpp.2011.001

The Joint Commission, 2017. Accreditation guide for hospitals. Available at: https://www.jointcommission.org/accreditation_guide_for_hospitals/

Thietart, R.A. (2009) The research challenge of French business schools: the case of the Grandes Ecoles. *Journal of Management Development*, 28(8), 711–717. Available from: https://doi.org/10.1108/02621710910985487

Thornton, P.H. & Ocasio, W. (1999) Institutional logics and the historical contingency of power in organizations: executive succession in the higher education publishing industry, 1958–1990. *American Journal of Sociology*, 105(3), 801–843. Available from: https://doi.org/10.1086/210361

Thornton, P.H., Ocasio, W. & Lounsbury, M. (2012) *The institutional logics perspective*. New York: Oxford University Press.

Toubiana, M. & Zietsma, C. (2017) The message is on the wall? Emotions, social media and the dynamics of institutional complexity. *Academy of Management Journal*, 60(3), 922–953. Available from: https://doi.org/10.5465/amj.2014.0208

Ungson, G.R., James, C. & Spicer, B.H. (1985) The effects of regulatory agencies on organizations in wood products and high technology/electronics industries. *Academy of Management Journal*, 28(2), 426–445. Available from: https://doi.org/10.2307/256209

Venkataraman, H., Vermeulen, P., Raaijmakers, A. & Mair, J. (2016) Market meets community: institutional logics as strategic resources for development work. *Organization Studies*, 37(5), 709–733. Available from: https://doi.org/10.1177/0170840615613370

Vickers, I., Lyon, F., Sepulveda, L. & McMullin, C. (2017) Public service innovation and multiple institutional logics: the case of hybrid social enterprise providers of health and wellbeing. *Research Policy*, 46(10), 1755–1768. Available from: https://doi.org/10.1016/j.respol.2017.08.003

Vollmers, S.M., Miller, D.W. & Kilic, O. (2010) An analysis of hospital brand mark clusters. *Journal of Hospital Marketing & Public Relations*, 20(2), 87–99. Available from: https://doi.org/10.1080/15390942.2010.493365

White, K.R. & Dandi, R. (2009) Intrasectoral variation in mission and values: the case of the Catholic health systems. *Health Care Management Review*, 34(1), 68–79. Available from: https://doi.org/10.1097/01.HMR.0000342982.14802.47

White, K.R. & Griffith, J.R. (2010) *The well-managed healthcare organization*. Chicago: Health Administration Press.

Wiese, J. (2010) *Teaching in the hospital*, Vol. 4. United States of America: ACP Press.

Wry, T. & Zhao, E.Y. (2018) Taking trade-offs seriously: examining the contextually contingent relationship between social outreach intensity and financial sustainability in global microfinance. *Organization Science*, 29(3), 507–528. Available from: https://doi.org/10.1287/orsc.2017.1188

Yan, S., Ferraro, F. & Almandoz, J. (2019) The rise of socially responsible investment funds: the paradoxical role of the financial logic. *Administrative Science Quarterly*, 64(2), 466–501. Available from: https://doi.org/10.1177/0001839218773324

Zhao, E.Y. & Wry, T. (2016) Not all inequality is equal: deconstructing the societal logic of patriarchy to understand microfinance lending to women. *Academy of Management Journal*, 59(6), 1994–2020. Available from: https://doi.org/10.5465/amj.2015.0476

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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