

Why are some nations more entrepreneurial than others? Investigating the link between cultural tightness–looseness and rates of new firm formation

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Abstract

Research Summary: We evaluate the role of cultural tightness–looseness as an explanation for cross-cultural variation in new firm formation rates. Modeling cultural tightness–looseness as an antecedent for individual entrepreneurial dispositions and informal institutions, we examine its impact on the number of new limited-liability companies registered per 1000 people and the rate of new entrepreneurs in the working-age population. Our findings show that cultural tightness–looseness explains 56% of the variation in new firm formation rates in a sample of 156 nations, and 71% of the variation in the rate of new entrepreneurs in the 50 US states, with greater cultural looseness corresponding to higher rates of entrepreneurship, on average. This effect is robust to various model specifications, measures, and controls for other cultural dimensions.

Managerial Summary: Our study examines how cultural tightness–looseness impacts new firm formation rates across nations and US states. We find that cultural looseness, characterized by flexible social norms, significantly influences entrepreneurial activity. Specifically, it explains 56% of the variation in new firm formation rates across 156 nations and 71% of the variation in new entrepreneur rates in the 50 US states. Nations

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and states with looser cultures tend to have higher rates of entrepreneurship. These findings are robust across different model specifications, measures, and control variables. Managers and policymakers should consider the strength and enforcement of social norms as factors in fostering new firm formation.

KEYWORDS

culture, entrepreneurship, new firm formation rates, tightness–looseness

1 | INTRODUCTION

Rates of new firm formation exhibit notable variation across different nations and regions within nations.¹ Although the level of economic development and technological advancements explain some of this variation across nations (Li et al., 2017), some variation appears attributable in part to cultural contexts (Cacciotti & Hayton, 2017; Hayton et al., 2002; Hechavarría, 2016; Kreiser et al., 2010; Lounsbury et al., 2021). While prior studies have investigated important dimensions of cultural variation, such as values and practices (Cacciotti & Hayton, 2017; Hayton et al., 2002; Lounsbury et al., 2021), the role of social norms—defined as standards or rules that are accepted by a group of people and guide their cognition and behavior (Centola et al., 2005; Gelfand, 2019; Morris et al., 2001), in explaining new firm formation is not well understood. This research gap raises an important question for entrepreneurship scholars: *What role do social norms play in explaining variation in rates of new firm formation within and across nations?*

Existing literature at the nexus of cultural studies and entrepreneurship identifies two primary perspectives for understanding cross-cultural differences in new firm formation rates. The first looks at how culturally determined *individual* dispositions, values, attitudes, and beliefs influence individual cognition and behavior (Kreiser et al., 2010; Shinnar et al., 2012; Wennberg et al., 2013). This perspective posits that culture affects entrepreneurship rates through so-called internal “programming of the mind” within individuals (Hofstede, 1980; Hofstede et al., 2010; Schwartz, 2008). Thereby cultural variation in individual factors affects new firm formation (Alon et al., 2016; Hofstede, 1980; Krueger et al., 2013; Morales et al., 2018). The second perspective looks instead at how culturally determined *informal social institutions* affect new firm formation rates (Autio et al., 2013; Stephan & Pathak, 2016; Stephan & Uhlaner, 2010). This literature posits that socially supportive institutions are an essential mechanism for explaining variation in new firm formation rates across nations.

In this study, we seek to integrate these perspectives by introducing a framework that combines both the individual and institutional perspective on cross-cultural variation in new firm formation. In the words of Ostrom (2010), our framework serves as a “metatheoretical device” that seeks to provide “a general language for describing relationships at multiple levels and scales” (p. 659). It is grounded in a focal construct within cross-cultural research—*cultural tightness–looseness* (CTL)—which captures variation in the strength and enforcement of social norms (Gelfand, 2019; Gelfand et al., 2006; Gelfand et al., 2011; Harrington & Gelfand, 2014).² Social norms are rules of behavior that pattern both individual cognition and what behaviors and practices a group, community, state, or nation considers acceptable. CTL is an important dimension of cultural variation that is distinct from constructs such as uncertainty avoidance (UA), power distance (PD), and individualism–collectivism (IC), as explained in Gelfand et al. (2006) and applies to both a national (Gelfand et al., 2011) and subnational level of analysis (Harrington & Gelfand, 2014).

Our study unfolds at two levels of analysis: a cross-national sample of 112 countries, drawn from national business registries data compiled by the World Bank Entrepreneurship Database, and a subnational sample of the rate of new entrepreneurs within the 50 US states from 1996 to 2021, compiled by the Kauffman Foundation. We focus on the number of new firms registered per capita in a calendar year as our primary dependent variable for several



reasons. First, while existing research has relied on telephonic surveys of individual entrepreneurial intentions as a means of assessing entrepreneurial activity (Bosma et al., 2020), our measure more directly captures new firm formation rates. Second, we seek to distinguish new firm formation from activities such as self-employment out of necessity, which are the focus of other studies. Finally, we focus on firm formation rates rather than expert assessments, because of the challenges inherent in subjective assessments (Rietveld & Patel, 2023).

Methodologically, we use causal mediation analysis (Aguinis et al., 2016) to evaluate the relationship between the CTL construct and the “underlying mechanisms and processes that connect antecedents and outcomes” (p. 666), namely new firm formation rates. Following the literature on culture and entrepreneurship, we evaluate whether CTL explains cross-national variation in two mechanisms proposed in the existing literature: (1) variation in *individual* entrepreneurial cognitions and dispositions, and (2) variation in the *informal institutions* that affect social support for entrepreneurship. We also control for additional factors that may affect new firm formation rates, including technological opportunities and formal institutions (Li et al., 2017).

We conduct several robustness checks. First, we evaluate the explanatory power of CTL against other measures of cultural variation such as Hofstede (1980), Schwartz (1994), and the World Values Survey (WVS; Inglehart, 1997; Inglehart & Baker, 2000). Second, we evaluate the robustness of our results using an alternative measure of entrepreneurship, the nascent entrepreneurship rate, from the Global Entrepreneurship Monitor (GEM; Bosma et al., 2020). Third, we test the robustness of our results using models to account for the endogenous formation of social norms (Gelfand et al., 2011). Fourth, we check the robustness of our results in a subnational sample of the 50 US states over 1996–2021, using data on subnational CTL from Harrington and Gelfand (2014) and data on the percent of the state's population that starts a new business from the Kauffman Foundation. Finally, we test for reverse causality—that new firm formation rates influence the extent of CTL in a society.

We show that the CTL construct is a robust predictor of new firm formation rates globally, explaining 56% of the cross-national variation, more than other cultural dimensions, such as Hofstede (1980), Schwartz (1994), and the WVS (Inglehart, 1997; Inglehart & Baker, 2000). It also explains 71% of the subnational variation in the rate of new entrepreneurs within the United States. We observe that nations and states with “looser” social norms have higher new firm formation and new entrepreneur rates, on average. We also show that on average, culturally looser nations are more likely to cultivate entrepreneurial dispositions among individuals and have more supportive informal institutions for entrepreneurial entry. These individual and institutional dimensions together fully mediate the relationship between CTL and new firm formation rates.

Our research enriches the entrepreneurship literature in several ways. First, by introducing the CTL construct into cross-cultural entrepreneurship studies, we offer an integrative framework that combines the individual and institutional perspectives in cross-cultural entrepreneurship research. This approach allows for a more holistic understanding of how culture influences new firm formation. Second, our empirical analysis of the tightness–looseness construct in relation to other dimensions of cultural variation explored in the literature enriches the toolkit available to scholars for explaining cultural variation in new firm formation. Third, our study builds upon existing research that has evaluated the role of values (Alon et al., 2016; Krueger et al., 2013; Morales et al., 2018) and practices (Autio et al., 2013; Calza et al., 2020; Stephan & Uhlaner, 2010) by examining the role of social norms as a distinct and valuable dimension of cultural variation in rates of new firm formation. Finally, our findings apply at both a national and subnational level of analysis and suggest that the strength and enforcement of social norms may be important levers that affect individual and institutional mechanisms promoting higher rates of new firm formation.

2 | THEORETICAL FRAMING

2.1 | Theoretical background

Culture is generally defined as “the system of shared beliefs, values, customs, behaviors, and artifacts that the members of society use to cope with their world and with one another, and that are transmitted from generation to

generation through learning” (p. 7) (Bates & Fred, 1990). Culture shapes individuals' identities and influences their perceptions, interactions, and the way they interpret their surroundings, and provides a lens for understanding social roles, communication, and the rules that govern social life (DiMaggio, 1997; Dorfman et al., 2012; Gelfand, 2019; Hofstede, 1980; Schein, 1990).

Entrepreneurship scholars have long recognized the role of culture as an explanatory factor for variation in new firm formation rates across countries and regions, alongside with other important factors, including technological progress, formal institutions, and economic development (Li et al., 2017). The cultural literature in entrepreneurship, supported by a long line of research (e.g., Cacciotti & Hayton, 2017; Davidsson, 1995; George & Zahra, 2002; Hayton et al., 2002; Hofstede et al., 2004; Lounsbury et al., 2021; Thomas & Mueller, 2000), highlights the deep-seated impact of culture on entrepreneurial cognition and behavior.

Extant studies of culture's role in new firm formation rates have primarily anchored in two theoretical perspectives, the individual and institutional perspectives.³ While both aim to understand how culture influences entrepreneurship, they differ in substantive areas, such as their level of analysis, core mechanisms, and interpretation of culture's role. Table 1 provides an overview of these perspectives to studying the effects of culture on entrepreneurship.

First, the *individual* perspective posits that culture shapes individuals' entrepreneurial cognitions and orientations (e.g., Fayolle et al., 2010; Kreiser et al., 2010; Tan, 2002). This perspective centers on the psychology of the individual entrepreneur, analyzing how cultural differences in values, attitudes, perceptions, and beliefs shape entrepreneurial traits. Scholars working in this tradition have sought to uncover important psychological mechanisms through which culture influences entrepreneurial behavior, including cultural dimensions proposed by Hofstede (1980) and Bond and Smith (2003). These scholars depict culture as mental programming—“the software of the mind” in the words of Hofstede et al. (2010, p. 5). The central idea is that individual psychological patterns, formed through lived experience, learning, and socialization, affect entrepreneurial cognition and orientation. Important studies in this domain suggest that cultural dimensions like self-expression values and IC influence entrepreneurial traits and behaviors, such as the propensity to take risks and be a self-employed individual, as evidenced by studies from Kreiser et al. (2010, 2019); Shinnar et al. (2012); and Wennberg et al. (2013).

Second, the *institutional* perspective zooms out to a broader sociological view and posits that culture influences new firm formation rates through *informal social institutions*. In the words of North (1990), these “informal constraints—such as conventions, codes of conduct, and norms of behavior—are a part of the heritage that we call culture” and “are a part of the informal institutions that complement formal rules” (pp. 36–37). These informal institutions affect collective and group-level social legitimation processes (e.g., Baughn & Neupert, 2003; Dheer, 2017; Fernández-Serrano et al., 2018; Hayton & Cacciotti, 2013; Pinillos & Reyes, 2011; Stephan & Uhlaner, 2010; Suddle et al., 2010). *Social legitimation* refers to the processes through which certain behaviors or practices become socially accepted and recognized as appropriate or desirable within a given society. A well-established idea in this literature is that a supportive institutional setting can provide cultural “tools” for entrepreneurs to gain legitimacy and rally support (Lounsbury & Glynn, 2001; Soublière & Lockwood, 2022). Scholars working in this tradition emphasize the role of informal social institutions in shaping how individuals and society at large view entrepreneurs and whether entrepreneurship as a vocation is socially acceptable. For instance, socially supportive cultures have been shown to correlate with higher entrepreneurship rates (Cacciotti & Hayton, 2017; George & Zahra, 2002; Hayton et al., 2002; Stephan & Uhlaner, 2010; Suddle et al., 2010).

Empirical studies of culture and entrepreneurship have utilized various measures of culture to test the implications of these perspectives. Prominent among these measures are dimensions of cultural values proposed by Hofstede (1980) and Schwartz (1994), the WVS (Inglehart, 1997; Inglehart & Baker, 2000), and the Global Leadership and Organizational Behavior Effectiveness (GLOBE) indicators (House et al., 2003), which measure variation in cultural values and practices, respectively. Each of these measures has received considerable attention in cultural studies.



TABLE 1 Comparison of perspectives relating culture to entrepreneurship.

	Individual	Institutional	Integrative
<i>Level(s) of Analysis</i>	Individual(s)	Social group(s)	Nation(s), state(s)
<i>Unit(s) of Analysis</i>	Individual(s)	Social group(s)	Nation(s), state(s)
<i>Core Mechanisms</i>	Culturally determined <i>individual orientations</i> (disposition, values, attitudes, and beliefs) that influence individual cognition and behavior.	Culturally determined <i>informal social institutions</i> (unwritten rules of behavior) affect social legitimation processes (social support, acceptance, and institutionalization) of practices.	Culturally determined <i>strength and enforcement of social norms</i> affects both individual orientations and informal social institutions.
<i>Role of Culture in Entrepreneurship</i>	Culture affects individuals' personal dispositions, values, attitudes, and beliefs that affect the propensity toward entrepreneurship.	Culture affects the social appropriateness, acceptance, support for, and institutionalization of entrepreneurship as a practice.	Culture affects the development of individual orientations toward entrepreneurship and informal social institutions that support entrepreneurship.
<i>Origins of Culture</i>	Culture arises from the accumulation of individual experiences, learning, and socialization, where personal values, attitudes, and beliefs are acquired through interactions with family, peers, and society.	Culture is rooted in the collective experiences and interactions of social groups, leading to shared understandings of what constitutes legitimate behavior, the formation of culturally accepted practices, descriptive norms, and social trust among group members.	Culture emerges from historical, environmental, and societal factors that affect the need for coordination and control, leading to strong or weak social norms and enforcement.
<i>Foundational Literature</i>	Hofstede (1980); Hofstede et al. (2010); Schwartz (1994); Bond and Smith (1996); Inglehart et al. (2014); Welzel (2013)	Weber (1948 [1905]); Stinchcombe (1965); North (1990); Baum & Oliver (1992); DiMaggio and Powell (1983); Morris et al. (2001); Lounsbury and Glynn (2001)	Gelfand et al. (2006); Gelfand et al. (2004); Elster and Gelfand (2021); Gelfand et al. (2011); Harrington and Gelfand (2014); Nowak et al. (2015)

Beginning first with the oldest, and perhaps the best known, Hofstede's cultural dimensions are based on IBM employee surveys and focus on how culture shapes workplace values. This measure of cultural variation has been used widely to assess the impact of national cultural values on entrepreneurship (Hofstede, 1980). In parallel, Schwartz's Theory of Basic Values (Schwartz, 1994; Schwartz, 2008), such as autonomy and egalitarian values, provides another tool for examining the effect of cultural values on entrepreneurial dispositions and behavior. Complementing these measures, the WVS indicators (Inglehart, 1997; Inglehart et al., 2014; Inglehart & Baker, 2000) delve into secular/rational values and aspects of self-expression, such as autonomy, and explore their links to entrepreneurial activities. Finally, the GLOBE indicators (Dorfman et al., 2012; House et al., 2003), which concentrate on the interplay between culture and organizational behavior, are instrumental in evaluating the role of cultural practices in entrepreneurship. These indicators highlight the varied cultural dimensions that scholars have used to evaluate the effect of cultural contexts on entrepreneurship.⁴

Entrepreneurship research using these varied measures, however, has produced mixed findings. Studies employing Hofstede's model and the GEM data (Bosma et al., 2020), for example, have shown varying correlations between cultural dimensions like IC and entrepreneurship rates (Pinillos & Reyes, 2011; Tiessen, 1997;

Valliere, 2019). Similarly, investigations using Schwartz's and the WVS measures have found varying and often discrepant results (Krueger et al., 2013; Liñán et al., 2016; Liñán & Fernandez-Serrano, 2014). GLOBE-based research has also found mixed support for different practices on the rate of entrepreneurial activity (Calza et al., 2020; Stephan & Pathak, 2016; Stephan & Uhlaner, 2010; Wennberg et al., 2013).

Scholars have also highlighted methodological challenges with these approaches. Issues such as ecological fallacy, where constructs measured at the individual level are used to generate inference about societal-level values and norms (Brewer & Venaik, 2011, 2014), and problems of generalizability across and within different geographic regions (Hofstede, 2006; Javidan et al., 2006; Tung & Verbeke, 2010) have been noted. As well, inconsistency in findings about the effects of these measures (Pinillos & Reyes, 2011; Rinne et al., 2012), and low explanatory power (Valliere, 2019) pose challenges. Some scholars have also noted that these analyses may be compromised by endogeneity issues, where antecedents of cultural differences, such as the prevalence of natural disasters and pathogens that created different cultural norms (Fincher et al., 2008; Murray et al., 2011; Schaller & Murray, 2008), are omitted from these analyses. These issues highlight the need for more integrative and robust approaches for evaluating the role of cultural contexts in new firm formation rates.

2.2 | Toward an integrative framework

In this study, we seek to develop an integrative framework that incorporates the CTL construct at its core. CTL—defined as “the strength of social norms and degree of sanctioning within societies” (p. 1231) (Gelfand et al., 2006)—encapsulates a distinct dimension of cultural variation. The CTL construct, first proposed by Gelfand et al. (2006), and further advanced by Gelfand et al. (2011), Harrington and Gelfand (2014), and Gelfand (2019), delineates the relationship between the strength and enforcement of social norms and individual psychological patterns and social behavior. We suggest that this construct offers a path toward building an integrative framework to study the role of culture in new firm formation, which combines both individual and institutional factors that affect entrepreneurship.

According to Gelfand et al. (2011), the strength and enforcement of social norms are a significant driver of differences in individual psychological patterns and social behavior that trace their roots to the historical conditions that different nations and groups of people faced. Groups with histories of high ecological and environmental adversity developed cultures that enforced strong social norms and rule-following, underscored by religiosity, moral conventions, and a narrow range of acceptable behaviors. Institutions in these cultures played a crucial role in punishing deviance and reinforcing rule adherence, which, while aiding in managing crises, also limited intellectual autonomy and openness to new ideas, fostering higher conformity and less deviation from established norms. Cultures marked by strong social norms, rule adherence, and self-monitoring are characterized as “tight,” while those with greater tolerance are “loose.”

Notably, the CTL construct differs conceptually from other constructs of cultural variation, such as Hofstede's (1980) dimensions, as discussed in Gelfand et al. (2006). For instance, IC refers to the degree to which societies emphasize having strong ties to ingroups versus individual autonomy (Hofstede, 1980). IC does not address the role of social norms or their enforcement. UA refers to the level of stress that is experienced in a society in the face of an unknown future (Hofstede, 1980). It again does not refer to social norms or their enforcement. Finally, PD refers to the extent to which power is distributed equally or unequally in societies (Hofstede, 1980), and pertains to the concentration of power rather than the enforcement of social norms. As Gelfand et al. (2006) explain, each of these dimensions explain different sources of cultural variation. For instance, there are societies that can be characterized as both collectivistic and loose (e.g., Brazil, Hong Kong); collectivistic and tight (e.g., Japan, Singapore); individualistic and loose (e.g., the United States, New Zealand); or individualistic and tight (e.g., Germany). Therefore, the CTL construct is unique and captures cultural variation in social norms, rather than cultural values.

The differentiation between tight and loose cultures encapsulated in the CTL construct is essential when considering the cultural factors that enable or constrain entrepreneurial activity. Although scholars have used the CTL



construct to explain variation in national innovativeness (Deckert & Schomaker, 2022), we extend this work by considering whether this construct also explains differences in new firm formation rates across cultures.

Extant cross-cultural entrepreneurship research focuses on explaining variations in new firm formation rates in terms of both psychological mechanisms, such as culturally influenced entrepreneurial orientations, and sociological factors, such as culturally influenced acceptance and desirability of entrepreneurship. This research aligns well with the idea that culture influences both individual and institutional antecedents to new firm formation. As well, the findings of Deckert and Schomaker (2022) that greater cultural looseness corresponds to higher tolerance and diversity of opinion, enabling innovation, suggests a possible linkage to other forms of creative and enterprising behavior, such as new firm formation. Indeed, many strong entrepreneurial ecosystems, including Silicon Valley, are characterized by relatively loose cultures and a high tolerance for diversity of opinion (Turner, 2006).

Building on this literature, we suggest that the CTL construct captures a unique and distinct dimension of cultural variation—the strength and enforcement of social norms—that can enrich our understanding of cross-cultural influences on entrepreneurship. We emphasize that while the CTL construct captures a society's general orientation toward norm enforcement, social legitimation pertains specifically to how entrepreneurial practices are deemed acceptable within that context. This distinction is crucial because, as we argue, a country with tight social norms may still vary in how entrepreneurship is legitimized and encouraged, depending on the broader cultural and economic context. We propose a framework that integrates this construct as an antecedent to the individual (psychological) and institutional (sociological) mechanisms that explain variation in new firm formation. In the next section, we develop these ideas further and propose a set of hypotheses about these cultural dynamics, underscoring the relationship between CTL and new firm formation rates.

2.3 | Hypothesis development

2.3.1 | CTL and individual determinants of entrepreneurship

One of the most enduring insights from cross-cultural studies of entrepreneurship is that cultural features of a society affect individual determinants of entrepreneurship, such as entrepreneurial attitudes, cognitions, and orientations (e.g., Fayolle et al., 2010; Kreiser et al., 2010; Tan, 2002; McGrath, MacMillan & Scheinber 1992; Mueller & Thomas 2001). Scholars of culture have long viewed culture as “software of the mind” (Hofstede et al., 2010, p. 5) that shapes how entrepreneurs perceive risks and opportunities. Important studies in this tradition, including Kreiser et al. (2010, 2019), Shinnar et al. (2012), and Wennberg et al. (2013), have evaluated stable differences in attitudes, perceptions, and beliefs and shown that entrepreneurial dispositions, such as the propensity to take risks and be a self-starter, vary with cultural contexts. These patterns arise from accumulated experiences, learning, and socialization within a given cultural context, whereby individuals acquire entrepreneurial attitudes, cognitions, and orientations through interactions with family, peers, and society.⁵

The integrative framework we propose, which applies the CTL construct to explain the individual and institutional mechanisms affecting new firm formation, complements this literature. It provides a lens through which to understand how cultural differences affect individual entrepreneurial dispositions and informal social institutions facilitating entrepreneurship. In looser cultures, where deviation from norms is more accepted, individuals may feel more encouraged to express differences in opinion and be more willing to embrace uncertainty and deviate from conventions as they recognize new business opportunities. By contrast, in tighter cultures, characterized by strict norm adherence, individuals might have a reduced inclination toward entrepreneurial entry due to a stronger alignment with conformist attitudes and risk aversion. Consistent with this idea, tighter cultures have been shown to have a lower tolerance for diversity in opinion (Gelfand et al., 2011), which in turn is associated with lower rates of innovation (Deckert & Schomaker, 2022). The CTL construct therefore leads to a deeper understanding of how the

overarching cultural context of norms' tightness or looseness may affect the development of entrepreneurial attitudes, cognitions, and orientations. Based on this, we propose the following hypothesis:

Hypothesis 1 (H1). *Ceteris paribus*, greater cultural looseness in a society corresponds to a higher prevalence of entrepreneurial dispositions among individuals, on average.

2.3.2 | CTL and institutional determinants of entrepreneurship

The proposed framework not only sheds light on variations in entrepreneurial attitudes, cognitions, and orientations, but also provides insight into social legitimation processes affecting support for entrepreneurship (Morris et al., 2001; Singh et al., 1986; Stinchcombe, 1965). Previous studies in cross-cultural entrepreneurship underscore the role of supportive cultures in fostering new firm formation. For instance, early research by Davidsson (1995) and Davidsson and Wiklund (1997) in Sweden revealed a positive correlation between entrepreneurial culture and new firm formation rates. This relationship has been further supported by research indicating that cultures that are more socially acceptive and encouraging of entrepreneurial activities tend to experience higher rates of new firm formation (Alon et al., 2016; Hechavarría & Reynolds, 2009; Morales et al., 2018).

The integrative framework we propose offers a compelling explanation for these findings. In nations with looser cultures, social norms are less rigid and less strictly enforced, allowing for greater freedom and acceptance of diverse opinions and behaviors. This environment, characterized by tolerance for rule-breaking and individual discretion, fosters entrepreneurial ventures. Indeed, prior work has shown that cultural resonance, embedded in cultural norms and practices, equips entrepreneurs with the means to navigate social structures and gain support and legitimacy for their ventures (Lounsbury & Glynn, 2001; Soublière & Lockwood, 2022). In this view, cultural looseness, with its less rigid norms, provides a more conducive environment for entrepreneurs to exercise agency. Consequently, countries with looser norms are better positioned to support higher rates of new firm creation due to their broader cultural endorsement of entrepreneurship and encouragement of individual initiative.

In contrast, tight cultures, defined by strong and strictly enforced social norms, often perceive rule breaking and any defiance of conventions in pursuit of new ideas and market opportunities as less legitimate, potentially hindering new enterprise creation. These cultures prioritize social conformity, higher religiosity, and exhibit less tolerance for deviant behaviors (Gelfand et al., 2011; Harrington & Gelfand, 2014). This distinction is central to the CTL construct, which suggests that tight and loose cultures vary in their focus on collective versus individual needs and goals and their preference for rule-following versus rule-breaking. The tight versus loose cleavage can affect how socially acceptable it is for individuals to pursue new venture ideas, especially those that involve innovation (Deckert & Schomaker, 2022). Therefore, we posit:

Hypothesis 2 (H2). *Ceteris paribus*, greater cultural looseness in a society corresponds to informal institutions that lend greater social support for entrepreneurship, on average.

2.3.3 | CTL and new firm formation rates

Based on the arguments above, the degree of cultural tightness or looseness can directly and indirectly (through mediation) influence new firm formation rates. Mediation "points to the presence of an intervening variable or mechanism that transmits the effect of an antecedent variable on an outcome" (p. 666) (Aguinis et al., 2016). This influence occurs by shaping the psychological traits that drive individuals' propensities for entrepreneurship and by affecting the broader social context and legitimation processes that determine the extent of societal acceptance and support for entrepreneurship as a vocation.



In culturally tight societies, there is a strong emphasis on rule adherence, reinforced through mechanisms like self-regulation, self-monitoring, and collective punishment for deviance (Aktas et al., 2015; Gelfand et al., 2004; Gelfand et al., 2006; Harrington & Gelfand, 2014). This environment fosters a cautious approach and a reluctance to deviate from established norms, shaping the attitudinal and cognitive antecedents to entrepreneurship (Bennett & Nikolaev, 2021; Deckert & Schomaker, 2022; Lounsbury et al., 2021; Shane & Ulrich, 2004). In these societies, greater cautiousness and a lower willingness to accept risk in pursuit of new opportunities, typically associated with entrepreneurial endeavors, are more pronounced, potentially dampening new firm formation rates (Wennberg et al., 2013).

Limited exposure to diverse ideas and narrower socialization experiences in culturally tight societies may further inhibit the development of entrepreneurial attitudes and openness to novel concepts, especially those that challenge the status quo (Gelfand et al., 2011; Harrington & Gelfand, 2014). Cognitively, individuals in tight cultures also demonstrate a higher prevention focus, cautiousness, and need for structure (Gelfand, 2019; Gelfand et al., 2006; Gelfand et al., 2011). These cognitive dispositions often do not align with entrepreneurial orientations, which require risk-taking, opportunity recognition, and resource mobilization, with individuals in tighter cultures being less prepared to navigate the uncertainties and fluid structures characteristic of entrepreneurship (Fayolle et al., 2010; Kreiser et al., 2010, 2019).

The cultural context may also shape how supportive a society is toward entrepreneurship and thereby the rate at which individuals create new enterprises in pursuit of market opportunities. At a societal level, research indicates that socially supportive cultures, characterized by a high degree of individual autonomy, are associated with high rates of new firm formation (Calza et al., 2020; Stephan & Pathak, 2016). The CTL construct offers a lens for understanding these results. Culturally loose societies offer greater leeway for individual autonomy and norm deviation, fostering social environments supportive of entrepreneurial endeavors. This social support comes in the form of a willingness to embrace new ideas and be highly tolerant of a diversity of opinions, enabling individuals to innovate and experiment (Deckert & Schomaker, 2022; Gelfand et al., 2006; Lounsbury et al., 2021). In contrast, the emphasis on conformity and limited intellectual autonomy in tight cultures may suppress entrepreneurial endeavors (Baughn & Neupert, 2003; Bogatyreva et al., 2019; Dheer, 2017; Hayton & Cacciotti, 2013; Suddle et al., 2010). We therefore posit:

Hypothesis 3a (H3a). *Ceteris paribus*, greater cultural looseness in a society corresponds to higher rates of new firm formation per capita, on average.

Hypothesis 3b (H3b). The effect in H3a above is mediated by a higher prevalence of entrepreneurial dispositions among individuals in the population.

Hypothesis 3c (H3c). The effect in H3a above is mediated by informal institutions that lend greater social support for entrepreneurship in the population.

3 | DATA AND METHODS

3.1 | Data sources and measures

The data sources and measures utilized in this study encompass a range of indices and metrics designed to capture various cultural, individual, institutional, and economic determinants relevant to entrepreneurship. For brevity of presentation, we provide an overview of our data sources and measures, and the description of the constructs and measures in the supplementary materials, Supplement A, Table A1.⁶

The CTL Index, our main independent variable, reflects the strength and enforcement of social norms, with values indicating levels of cultural tightness or looseness, compiled by Uz (2015, 2018) based on the methodology and constructs described in Gelfand et al. (2011).⁷ We use two mediating variables through which CTL may affect new firm formation rates: individual and institutional determinants of entrepreneurship, captured by multi-item composite indices compiled by the Global Entrepreneurship Development Institute (Acs et al., 2018). Individual determinants of entrepreneurship are measured through a standardized multi-item composite index that includes cognitive and dispositional factors, focusing on the prevalence of entrepreneurial orientations (e.g., entrepreneurial attitudes, risk acceptance). Institutional determinants of entrepreneurship focus on societal-level informal institutions (e.g., social support for entrepreneurship) that affect the general social acceptance and support for entrepreneurial activity.

New firm formation rates, our main dependent variable, are assessed at both national and state levels using data from the World Bank's Entrepreneurship Database and the Kauffman Foundation, respectively. At a national level, our outcome of interest is the rate at which individuals of working age in a population create new firms. This is measured as the number of new firms per 1000 people of the working age population, log adjusted, based on data from national statistical bureaus compiled by the World Bank. At a subnational level, our outcome of interest is the percent of the population that starts a new business. These data come from the Kauffman Foundation and capture all new business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non-employers for all 50 US states, from 1996 to 2021.

Additionally, we supplement this measure with various indices capturing the rate and quality of entrepreneurship in the United States. These include the Kauffman Early-Stage Entrepreneurship (KESE) index, rate of new entrepreneurs, early-stage startup survival rate, and the per-capita domestic patent applications filed in each of the 50 US states, sourced from the US Patent and Trademark Office. Our controls include the quality of formal institutions (from the World Governance Index) and technological opportunities (from the World Intellectual Property Organization), following operationalization by Li et al. (2017). We also control for economic productivity (GDP per capita), human capital (World Bank's Human Capital Index), unemployment rate (World Development Indicators), financial capital availability for entrepreneurs (Global Entrepreneurship Development Institute), population density (World Development Indicators), and cultural variation along measures proposed by Hofstede (1980), Hofstede et al. (2010), and Schwartz (1994), and the WVS (Inglehart et al., 2014; Welzel, 2013).

Our cross-national sample comprises 156 nations for which we have data on new firm formation rates, which is our main analysis sample.⁸ Our subnational sample comprises the 50 US states observed over 1996–2021, for a total of 1299 observations, where we have about 26 years of data for each state.⁹

3.2 | Model specification

Methodologically, we employ causal mediation analysis (Aguinis et al., 2016; Hicks & Tingley, 2011; MacKinnon et al., 2007) to examine the relationship between the CTL construct and new firm formation rates. This approach helps us explore the “underlying mechanisms and processes that connect antecedents and outcomes” (p. 666) (Aguinis et al., 2016). Specifically, we assess whether CTL explains cross-national variation through two mechanisms identified in the literature: (1) *individual* entrepreneurial cognitions and dispositions, and (2) informal *institutions* that influence social support for entrepreneurship. Additionally, we control for factors such as technological opportunities and formal institutions (Li et al., 2017) that also affect new firm formation rates, in addition to cultural differences.

We opt for a causal mediation model over moderation or moderated-mediation models for several reasons. Conceptually, as Aguinis et al. (2016) explain, “moderation refers to the conditions under which an effect varies in size, whereas mediation refers to underlying mechanisms and processes that connect antecedents and outcomes” (p. 666). Our study aims to examine and test the underlying *mechanisms* and *processes* linking cultural variation along the CTL continuum to new firm formation rates. Specifically, we investigate the formation of individual determinants

of entrepreneurial entry (e.g., entrepreneurial cognitions and dispositions) and informal institutional determinants of entrepreneurship (e.g., social support for entrepreneurship). Figure 1 illustrates these hypothesized mechanisms and their relationship to new firm formation rates.

As depicted in the figure, and following the methodology described in Aguinis et al. (2016), we conduct several sets of analyses to check for causal mediation. Using mean-centered values of our variables, we estimate the following regression models:

$$Y = cX + e_y \tag{1}$$

$$M_1 = a_1X + e_z \tag{2}$$

$$M_2 = a_2X + e_w \tag{3}$$

$$Y = b_1M_1 + b_2M_2 + c'X + e'_y \tag{4}$$

Equation (1) estimates the direct effect of CTL (X) on new firm formation rates (Y) with model error (e_y). In Equation (2), we estimate the effect of CTL (X) on the first mediator variable, individual determinants of entrepreneurship (M_1), with model error (e_z), testing H1. Equation (3) estimates the effect of CTL (X) on the second mediator variable, informal institutional determinants of entrepreneurship (M_2), with model error (e_w), testing H2. Equation (4) is the mediation model, where both mediator variables (M_1 and M_2) predict the outcome of interest (Y) alongside the antecedent variable, CTL (X), testing H3 (a, b, and c).

Several results are needed to establish causal mediation, as described in Aguinis et al. (2016). First, in Equation (1), the coefficient c should be statistically significant to establish a correlation between the antecedent and the outcome, although this is not a strict requirement. Second, both a_1 and a_2 in Equations (2) and (3), respectively, should be statistically significant, indicating a direct relationship between the antecedent variable and the mediating variables. Third, both b_1 and b_2 in Equation (4) should be statistically significant, demonstrating that

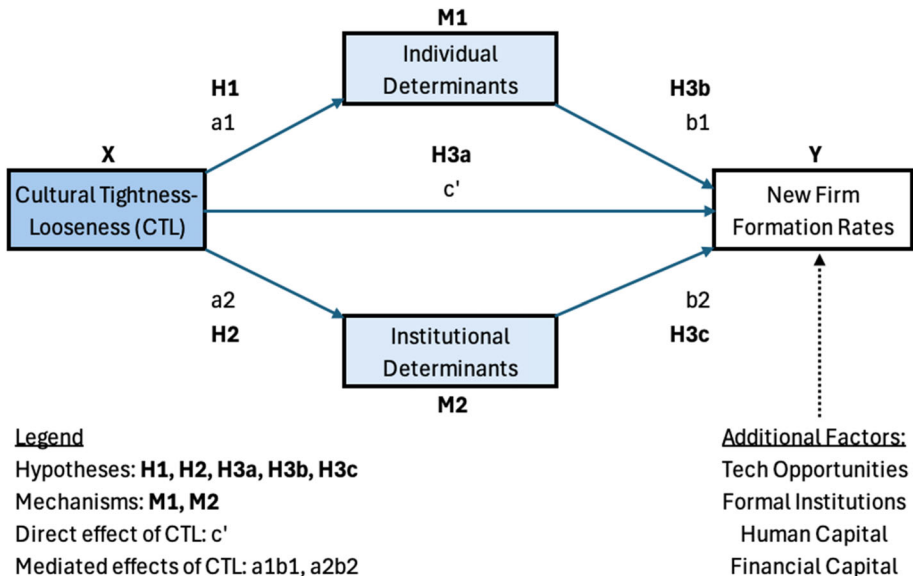


FIGURE 1 Hypothesized relationships and mechanisms.

the mediators jointly predict the outcome of interest. Finally, c' should not be statistically significant if both mediating variables fully mediate the effect of CTL on new firm formation.¹⁰

3.3 | Descriptive statistics

Table 2 provides the summary statistics and pairwise correlations for the main variables.

4 | RESULTS

4.1 | Hypothesis tests

Table 3 presents the results of our analyses testing the hypothesized relationships between cross-national variation in CTL and the number of new firms registered per 1000 people of working age in a calendar year. We discuss our results below.

4.1.1 | CTL and individual determinants of entrepreneurship

Hypothesis H1 posits that CTL affects *individual* determinants of entrepreneurship. The results in model (1) show that CTL has a positive and statistically significant coefficient (0.290, $p < 0.01$) on individual determinants. This result indicates that as cultural looseness increases, so do individual determinants of entrepreneurship, supporting H1. Specifically, a 1 SD increase in CTL corresponds to a 0.29 SD increase in the index of individual determinants. The R -squared value for this model is 0.343, suggesting that CTL explains 34.3% of the variance in individual determinants.

4.1.2 | CTL and institutional determinants of entrepreneurship

Hypothesis H2 asserts that CTL affects *institutional* determinants of entrepreneurship. The results in model (2) demonstrate a positive and statistically significant coefficient (0.403, $p < 0.01$) for CTL on institutional determinants.¹¹ Specifically, a 1 SD increase in CTL corresponds to a 0.403 SD increase in the index of institutional determinants. This result implies that higher levels of cultural looseness are associated with more supportive informal social institutions for entrepreneurship, supporting H2. The R -squared value for this model is 0.51, indicating that CTL accounts for 51% of the variance in institutional determinants.

4.1.3 | CTL and new firm formation rates

Hypotheses H3(a)–(c) propose that CTL influences new firm formation rates through its impact on individual and institutional mechanisms to affect new firm formation rates.

H3a: *Direct effect of CTL on new firm formation rates*—The direct effect of CTL on new firm formation rates is tested in model (3). The coefficient for CTL is positive and statistically significant (0.462, $p < 0.01$), indicating that CTL directly affects new firm formation rates. The R -squared value for this model is 0.430, showing that CTL explains 43% of the variance in new firm formation rates.



H3b: Mediated effect of CTL through individual determinants of entrepreneurship—Model (4) examines the mediation effects, showing that individual determinants have a positive and statistically significant coefficient (0.376, $p < 0.01$) on new firm formation rates. This result suggests that individual determinants mediate the relationship between CTL and new firm formation, supporting H3b.

TABLE 2 Descriptive statistics and pairwise correlations.

Panel A: Cross-national sample													
	Variable	N	Mean	SD	Min	Max							
(1)	CTL	242	0.00	1.00	-2.09	3.07							
(2)	Individual determinants	135	0.00	1.00	-2.69	2.16							
(3)	Institutional determinants	135	0.00	1.00	-1.57	2.12							
(4)	New firm rate (Log) ^a	156	0.22	1.74	-4.32	8.18							
(5)	Formal institutions index	199	0.00	1.00	-2.21	2.16							
(6)	Tech opportunities index	106	0.00	1.00	-0.93	3.57							
(7)	GDP per capita (Log)	238	0.00	1.00	-2.47	2.13							
(8)	Human capital index	157	0.00	1.00	-1.81	2.09							
(9)	Unemployment rate	233	0.00	1.00	-1.40	4.37							
(10)	Financial capital index	135	0.00	1.00	-1.09	2.17							
(11)	Population density	262	0.00	1.00	-2.21	2.16							
(12)	Hofstede index	100	0.00	1.00	-1.52	1.51							
(13)	Schwartz index	73	0.00	1.00	-1.50	1.99							
(14)	WVS index	65	0.00	1.00	-1.62	3.04							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
(2)	0.28												
(3)	0.55	0.58											
(4)	0.37	0.33	0.40										
(5)	0.56	0.60	0.91	0.45									
(6)	0.42	0.48	0.90	0.37	0.83								
(7)	0.56	0.48	0.83	0.49	0.79	0.84							
(8)	0.47	0.43	0.79	0.45	0.77	0.85	0.93						
(9)	-0.04	-0.10	-0.32	0.01	-0.29	-0.35	-0.20	-0.38					
(10)	0.36	0.72	0.73	0.31	0.65	0.75	0.69	0.68	-0.19				
(11)	-0.09	-0.13	-0.09	-0.42	-0.38	-0.12	-0.31	-0.34	-0.07	0.05			
(12)	0.18	0.04	0.28	-0.02	0.15	0.34	0.44	0.42	-0.52	0.19	0.26		
(13)	0.71	0.25	0.64	0.26	0.68	0.59	0.71	0.64	-0.10	0.47	-0.22	0.33	
(14)	0.57	0.38	0.76	0.28	0.75	0.80	0.71	0.70	-0.26	0.64	-0.16	0.19	0.74
Panel B: Subnational sample: 50 US states, 1996–2021													
	Variable	N	Mean	SD	Min	Max							
(1)	CTL	1299	0.00	1.00	-2.30	1.82							
(2)	Rate of new entrepreneurs ^a	1224	0.00	1.00	-2.24	3.85							
(3)	KESE Index ^b	1224	0.00	1.00	-3.27	3.84							
(4)	Patents per capita (Log)	1299	0.00	1.00	-2.28	1.89							

(Continues)

TABLE 2 (Continued)

Panel B: Subnational sample: 50 US states, 1996–2021							
Variable	N	Mean	SD	Min	Max		
(5) Startup early survival rate	1325	0.00	1.00	−5.54	4.50		
(6) GDP per capita (Log)	1299	−2.64	0.17	−3.04	−2.26		
(7) Unemployment rate	1299	3.36	0.73	2.00	5.20		
(8) Population (Log)	1299	15.23	1.01	13.27	17.48		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) CTL							
(2) New entrepreneurs	0.09						
(3) KESE Index	0.04	0.74					
(4) Patents per capita (Log)	0.56	−0.12	−0.11				
(5) Startup early survival rate	−0.04	−0.10	0.40	0.00			
(6) GDP per capita (Log)	0.54	−0.03	0.06	0.53	0.05		
(7) Unemployment rate	0.20	−0.03	−0.10	0.14	−0.08	0.15	
(8) Population (Log)	−0.11	−0.14	−0.09	0.39	0.06	0.13	0.38

Note: Panel A—All variables have been standardized for ease of interpretation; GDP per capita is adjusted by taking the natural logarithm (Log) to correct for skew. Superscript letter “a” represents the number of new firms registered in a calendar year per 1000 people of the working-age population, adjusted by taking the natural logarithm to correct for skew. Panel B—All entrepreneurship variables have been standardized for ease of interpretation; GDP per capita, patents per capita, and population are adjusted by taking the natural logarithm (Log) to correct for skew.

^aPercent of population that starts a new business, data compiled by the Kauffman Foundation.

^bKauffman Early-Stage Entrepreneurship Index.

TABLE 3 Hypothesis tests: Causal mediation models.

	(1) Individual determinants (H1)	(2) Institutional determinants (H2)	(1) New firm rate (Log) (H3a)	(4) New firm rate (Log) (H3b, H3c)
CTL	0.290*** [0.0911]	0.403*** [0.0600]	0.462*** [0.101]	0.137 [0.102]
Individual determinants				0.376*** [0.117]
Institutional determinants				0.535*** [0.169]
R ²	0.343	0.510	0.430	0.563
N (nations)	112	112	112	112

Note: Standard errors in brackets; sample size varies because not all variables are available for all nations in our sample.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

H3c: Mediated effect of CTL through informal institutional determinants of entrepreneurship—Similarly, model (4) indicates that institutional determinants have a positive and statistically significant coefficient (0.535, $p < 0.01$) on new firm formation rates. This result supports H3c, demonstrating that institutional determinants also mediate the relationship between CTL and new firm formation rates.



The coefficient for CTL in model (4) (0.137) is no longer statistically significant, suggesting that the effects of CTL on new firm formation rates are *fully mediated* by individual and institutional determinants. The *R*-squared value for this model is 0.563, indicating that the combined model explains 56.3% of the variance in new firm formation rates.

These results strongly support all three hypotheses, demonstrating that cultural looseness has a strong positive relationship with new firm formation rates through its impact on both individual and institutional determinants of entrepreneurship.

Figure 2 illustrates the relationship we uncovered between CTL and the number of new firms registered in a calendar year per 1000 people of the working-age population (Panel A), and various antecedents to new firm formation (Panel B). The figure plots CTL on the x-axis against the standardized values of the rate of new firm formation on the y-axis. Each point on the graph represents a different nation, coded by its United Nations ISO3 code. The Pearson correlation coefficient ($r = 0.42$) quantifies the strength and direction of the linear relationship between the two variables. The interpretation of this coefficient is that variation in CTL across nations explains 42% of the total variation in new firm formation. The positive correlation coefficient means that, on average, culturally looser nations tend to have higher rates of new firm formation.

Figure 3 displays the estimated effect of CTL on entrepreneurship in the US 50 states. The figure presents the correlations between CTL and the rate of new entrepreneurs in the working-age population (Panel A), and domestic patent applications for inventions (Panel B). We observe that an increase in cultural looseness is positively related to the rate of new entrepreneurs in the United States, and strongly positively related to the rate of domestic patent applications per capita at the subnational level.

4.2 | Robustness checks

We conduct several robustness checks to validate our results. First, we compare the explanatory power of CTL with other cultural variation measures, including Hofstede (1980), Schwartz (1994), and the WVS (Inglehart, 1997; Inglehart & Baker, 2000). Second, we examine the robustness of our findings in a subnational sample of the 50 US states over 1996–2021, utilizing data on subnational CTL from Harrington and Gelfand (2014) and data on the percentage of the state's population that starts a new business from the Kauffman Foundation. These longitudinal data enable us to test for reverse causality to determine if new firm formation rates influence the extent of cultural tightness or looseness in a society. We explain our results below.

4.2.1 | Comparing CTL measure to other cultural measures

Table 4 presents the robustness checks comparing the CTL measure to other cultural measures, including the Hofstede Index, Schwartz Index, and WVS Index. These models aim to verify the uniqueness of the CTL measure in explaining new firm formation rates.

In models (1) and (2), the CTL measure remains a significant predictor of new firm formation rates ($p < 0.05$) with coefficients of 0.122 and 0.132, respectively, even after controlling for various other factors. The Hofstede Index, shown in columns (3) and (5), does not significantly predict new firm formation rates, with coefficients of -0.0674 and -0.0489 , suggesting it may not be as robust a measure in this context. The Schwartz Index, presented in models (4) and (6), shows a significant negative relationship with new firm formation rates, with coefficients of -0.434 ($p < 0.01$) and -0.252 ($p < 0.05$), indicating that higher values on this index are associated with lower rates of new firm formation. Finally, the WVS Index in models (5) and (7) also shows a negative relationship with new firm formation rates, with coefficients of -0.255 ($p < 0.10$) and -0.139 , respectively. Overall, the CTL measure demonstrates consistent and significant positive relationships

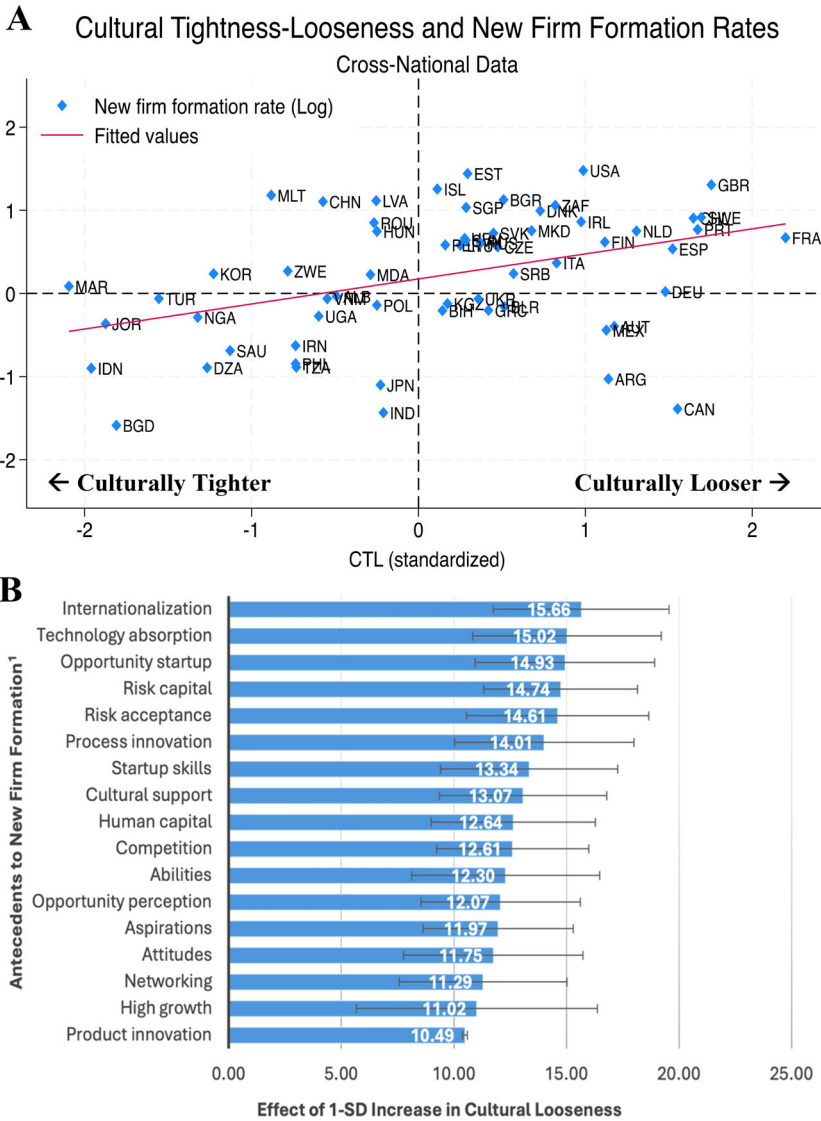


FIGURE 2 CTL and new firm formation rates across nations. Panel (A): New firm formation rate measures the number of new firms registered in a calendar year per 1000 people of the working-age population, natural log adjusted for skew. Data from the World Bank Entrepreneurship Database, with linear fit. [†]Panel (B): Antecedents to new firm formation data from the Global Entrepreneurship Development Institute 14 Pillars of Entrepreneurship (Acs et al., 2018). Coefficient point estimates and standard errors from OLS models using CTL as the predictor.

with new firm formation rates, highlighting its robustness compared to other cultural measures. The *R*-squared values across these models range from 0.439 to 0.513, indicating higher levels of explained variance, compared to alternative measures.

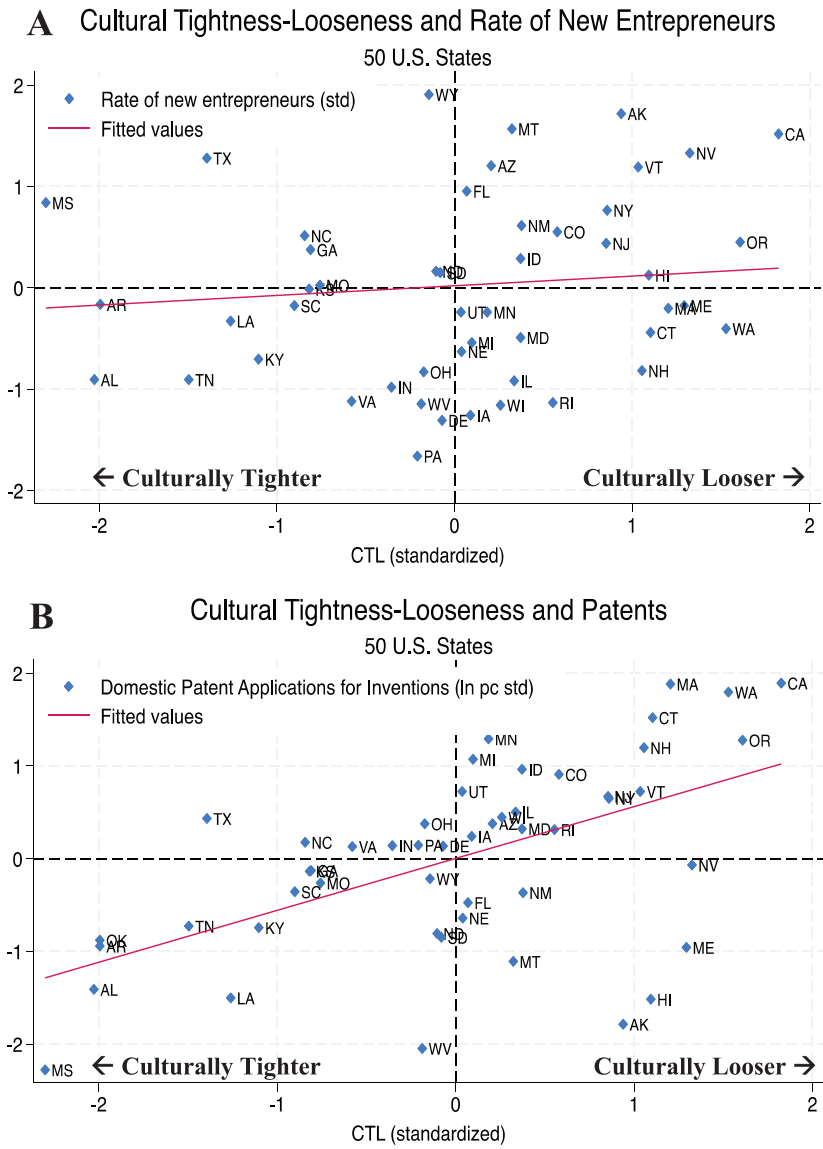


FIGURE 3 CTL and new firm formation rates across the 50 US states. Panel (A): Rate of new entrepreneurs (std) captures the standardized percent of population that starts a new business, compiled by the Kauffman Foundation. Linear fit on the data. Panel (B): Domestic patent applications for inventions per capita (pc), standardized and log adjusted (ln), data from the US Patent Office. Linear fit on the data. CTL is the standardized cultural tightness-looseness index, where negative values denote greater cultural tightness, and positive values denote greater cultural looseness.

4.2.2 | CTL and subnational variation in entrepreneurship

Table 5 examines the robustness of the CTL measure in predicting entrepreneurship outcomes at a subnational level of analysis, in our case, across the 50 US states from 1996 to 2021. The models use state-year fixed effects and control for population (log), GDP per capita (log), and unemployment rate.

TABLE 4 Robustness checks: Comparison of the CTL measure to other cultural measures.

	CTL measure			Other cultural measures			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	New firm rate (Log)	New firm rate (Log)	New firm rate (Log)	New firm rate (Log)	New firm rate (Log)	New firm rate (Log)	New firm rate (Log)
CTL	0.122** [0.0597]	0.132** [0.0651]	0.319*** [0.114]	0.221** [0.0998]			
Hofstede Index		-0.0674 [0.0793]			-0.0489 [0.0821]		
Schwartz Index			-0.434*** [0.145]			-0.252** [0.119]	
WVS Index				-0.255* [0.127]			-0.139 [0.130]
R ²	0.510	0.497	0.513	0.475	0.475	0.458	0.439
N (nations)	82	75	55	54	76	55	54

Note: All variables are standardized; model standard errors in brackets; models control for formal institutions, technological opportunities, log GDP per capita, human capital index, unemployment rate, financial capital, and population density. Sample size varies because not all variables are available for all nations in our sample.

** $p < 0.05$. *** $p < 0.01$. * $p < 0.10$.

TABLE 5 Robustness checks: CTL and entrepreneurship in the 50 US states, 1996–2021.

	(1) Rate of new entrepreneurs ^a	(2) Kauffman Early-Stage Entrepreneurship Index ^b	(3) Domestic patent applications for inventions per capita (Log) ^c	(4) Startup early survival rate ^d
CTL	2.388*** [0.455]	2.634* [1.081]	0.535*** [0.0251]	2.462*** [0.514]
R ²	0.71	0.63	0.58	0.41
N (state-years)	1200	1200	1299	1299

Note: Standard errors in brackets; state-year fixed effects models. All models control for the population (Log), GDP per capita (Log), and unemployment rate. Sample size varies because not all variables are available for all states and years in our sample.

^aPercent of population that starts a new business, data from the Kauffman Foundation.

^bCaptures the overall rate and quality of early-stage entrepreneurship across all indicators.

^cDomestic patent applications for inventions, data from the US Patent and Trademark Office.

^dPercent of startups that are still active after 1 year, data from the Kauffman Foundation.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Model (1) shows that CTL is a significant predictor of the rate of new entrepreneurs, with a coefficient of 2.388 ($p < 0.001$), indicating that higher cultural looseness is associated with a higher percentage of the population starting new businesses. In model (2), the CTL measure significantly predicts the KESE Index, with a coefficient of 2.634 ($p < 0.05$). Model (3) demonstrates that CTL significantly predicts domestic patent applications per capita (log), with



a coefficient of 0.535 ($p < 0.001$), suggesting that cultural looseness is positively related to innovation as measured by patent applications. Finally, model (4) shows that CTL significantly predicts the startup early survival rate, with a coefficient of 2.462 ($p < 0.001$), indicating that startups in culturally loose states are more likely to survive after 1 year. The R -squared values for these models range from 0.41 to 0.71, reflecting strong explanatory power. These results collectively confirm the robustness of the CTL measure in predicting entrepreneurship and innovation at a subnational level of analysis.

4.2.3 | Robustness to alternative measures, endogeneity, and reverse causality

We conduct several additional robustness checks, the results of which are reported in the supplementary materials, Supplement A, Tables A5–A7. First, we use the nascent entrepreneurship rate from the GEM (Bosma et al., 2020) as an alternative measure of entrepreneurship (Table A5). We find that our results remain robust, with CTL significantly predicting differences in nascent entrepreneurship in the population. Second, we account for the endogenous formation of social norms using two-stage least-squares instrumental variable (IV) regression models, following methodologies described in Angrist and Pischke (2009) and Wooldridge (2002).¹² This approach helps to mitigate the concerns surrounding omitted variable bias related to the variables predicting variation in the strength and enforcement of social norms, suggested by Gelfand et al. (2011). Our results show that after instrumenting for environmental factors affecting the strength of social norms, greater cultural looseness robustly predicts differences in new firm formation rates (Table A6). Third, we test for reverse causality using the 10-year lagged values of our entrepreneurship rate indicators in the United States on the state-level cultural looseness index. We find that these lagged values of entrepreneurship do not predict CTL, ruling out reverse causality (Table A7).

5 | DISCUSSION AND CONCLUSION

We evaluated the role of CTL in explaining cross-national variation in new firm formation rates. Our study highlights the significant influence of cultural norms, as captured by the CTL construct proposed by Gelfand et al. (2006), on entrepreneurial activity across societies. Specifically, we found that the strength and enforcement of social norms play a critical role in shaping both individual entrepreneurial dispositions and the informal social institutions that support or hinder entrepreneurship.

Our findings offer a new lens for understanding the pervasive influence of cultural norms on entrepreneurship. The significant effect sizes observed in our analysis underscore how deeply CTL shapes entrepreneurial activities. In culturally loose societies, where social norms are more flexible and individual expression is encouraged, entrepreneurs are more likely to create new firms, benefiting from both personal dispositions and broader social support. Conversely, in tighter cultures, where rule enforcement and conformity are emphasized, entrepreneurial activities may be constrained, but institutional environments can provide cultural tools to help entrepreneurs navigate these limitations.

The implications of these findings are profound: our research suggests that entrepreneurial success is not solely determined by cultural looseness but also by the presence of institutional mechanisms that support entrepreneurial legitimacy. Even in culturally tight environments, fostering entrepreneurship can be achieved by leveraging institutional support systems that mitigate the restrictive effects of strong norms.

5.1 | Contributions

Our study makes several contributions to the entrepreneurship literature by incorporating the CTL framework as an antecedent to two important mechanisms in the cross-cultural entrepreneurship literature: (1) individual dispositions toward entrepreneurship (e.g., entrepreneurial cognitions, orientations), and (2) informal social institutions that affect social acceptance and support for entrepreneurship.

First, our research deepens our understanding of the potential causal pathways through which cultural variation at a national and subnational level may influence specific *individual* attitudes, cognitive dispositions, and traits of entrepreneurs. These include high risk tolerance, low fear of failure, high individualism and intellectual autonomy, and low UA, as explored by Kreiser et al. (2010, 2019); Wennberg et al. (2013); Liñán et al. (2016); and Hofstede et al. (2004), among others. We extend this literature by proposing an integrative framework to understand how the strength and enforcement of social norms influence entrepreneurial attitudes, cognitive dispositions, and traits. Our study underscores the role that social norms play in the development and manifestation of these attitudes, cognitive dispositions, and traits. Our study thereby adds a new dimension to understanding the role of culture in entrepreneurial dispositions, highlighting that beyond the traditionally studied values and practices, the strength and enforcement of social norms explains entrepreneurial orientations.

Second, our research contributes to the understanding of how culture shapes *informal institutional* drivers of entrepreneurship. In addition to the role of *formal* institutions, such as government laws and regulations (Li et al., 2017), *informal* institutions, which encompass the unwritten rules of social conduct (North, 1990), also play a role. Our study complements existing studies on this topic, such as Stephan and Pathak (2016), Stephan and Uhlaner (2010), and Autio et al. (2013), by linking the development of socially supportive informal institutions to variation in the strength and enforcement of social norms, as encapsulated by cultural tightness or looseness. Our study thereby extends an understanding of the cultural influences on entrepreneurship by showing that variation in the strength and enforcement of social norms explains variance in informal institutional support for entrepreneurship.

Finally, our research underscores the significant role of cultural tightness or looseness in influencing the rates of new firm formation both nationally and subnationally, extending a rich literature on this topic, including George and Zahra (2002), Hayton and Cacciotti (2013), Cacciotti and Hayton (2017), and Lounsbury et al. (2021). Recognizing and valuing the diversity of cultural norms worldwide is crucial for understanding differences in individual entrepreneurial orientations and informal social institutions that support new firm formation.

We show that cultural looseness corresponds to a higher prevalence of entrepreneurial dispositions and greater social acceptance of entrepreneurship, while cultural tightness tends to suppress these factors by prioritizing social conformity and strict rule enforcement. Our findings extend the literature by showing that CTL influences the broader environment in which entrepreneurial activity occurs, revealing that this cultural dimension explains 56% of the cross-cultural variation in new firm formation rates across nations, and 71% of the variation across US states—a higher proportion of the variation in new firm formation rates than existing measures, such as Hofstede's, Schwartz's, and the WVS.¹³ Moreover, this relationship holds across multiple—national and subnational—levels of analysis.

Our research also advances the understanding of how CTL interacts with informal institutions. By demonstrating that cultural looseness fosters socially supportive environments for entrepreneurship, our study provides a fresh perspective on the role of culture as a flexible resource that entrepreneurs can leverage to gain legitimacy and rally support for their ventures (Lounsbury & Glynn, 2001; Soublière & Lockwood, 2022). This contrasts with more deterministic views of culture, showing that even in tight cultures, entrepreneurs can use cultural tools within supportive institutional settings to garner legitimacy for their ventures.



5.2 | Practical implications

Our study provides valuable practical insights for both entrepreneurs and policymakers. Entrepreneurs operating in tighter cultures may face greater challenges in gaining social legitimacy for their ventures due to the emphasis on rule-following and conformity. However, by tapping into supportive institutional frameworks—such as incubators, accelerators, or government programs (Assenova, 2021; Assenova & Amit, 2024; Dutt et al., 2016)—entrepreneurs can overcome cultural constraints and legitimize their ventures (Lounsbury & Glynn, 2001; Soublière & Lockwood, 2022).

For policymakers, the findings suggest that fostering entrepreneurial ecosystems in tighter cultures may require targeted interventions. This can involve relaxing rigid social norms or, alternatively, creating institutional support mechanisms that legitimize entrepreneurship within the existing cultural context. For example, policies that provide formal recognition of entrepreneurial activities, offer financial incentives, or facilitate access to networks can encourage entrepreneurial behavior even in environments where cultural norms are strict. Policymakers must recognize the interplay between cultural norms and institutional settings to design effective strategies that promote entrepreneurship.

5.3 | Directions for future research

This study opens several avenues for future research. First, we encourage scholars to explore how cultural norms evolve over time and how these shifts affect entrepreneurial agency. Longitudinal studies could provide insights into how economic development, technological change, or political reforms impact CTL and, consequently, entrepreneurial activity.

Second, more cross-cultural research is needed to examine the interaction between CTL and other institutional factors, such as regulatory environments, access to capital, or education systems. Understanding how these factors combine to influence entrepreneurship will provide a more comprehensive view of how culture and institutions shape entrepreneurial outcomes. Future studies could investigate how different configurations of institutional and cultural environments either constrain or empower entrepreneurs, and how policymakers can intervene to foster more dynamic entrepreneurial ecosystems.

Finally, further research could examine the impact of CTL on the quality and types of ventures created. While our study focused on new firm formation rates, there is a need to explore whether cultural norms also influence the growth potential, innovation levels, or social impact of different types of enterprises. Investigating how cultural and institutional factors influence not only the quantity but also the quality of entrepreneurial outcomes could offer new insights for both scholars and practitioners.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in the supplementary material of this article.

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ENDNOTES

- ¹ For example, the number of new firms registered per capita is 16.5 in the United States, 8.58 in China, 0.10 in India, 1.57 in Brazil, 3.2 in Israel, and 7.06 in Denmark. Variations also emerge within nations. In the United States, for example, the highest rate of new entrepreneurs in the population is in California, where entrepreneurs comprise nearly 0.40% of the population, and the lowest rates are in West Virginia (0.19%) and Pennsylvania (0.17%).
- ² We note that scholars have evaluated the role of cultural tightness–looseness in innovation (Deckert & Schomaker, 2022). However, there is an opportunity to connect this construct to new firm formation rates.
- ³ In the terminology of North (1990), *informal* institutions refer to the unwritten rules of behavior that guide economic activity. By contrast, *formal* institutions are written and codified rules that guide behavior and expectations, such as government laws, policies, and regulations.
- ⁴ We provide an overview and comparison of these different measures in the supplementary materials, Table A1, and a summary of prior studies evaluating the effect of culture on entrepreneurship in the supplementary materials, Table A2.
- ⁵ We provide a summary of prior findings on the effect of culture on entrepreneurship in the supplementary materials, Supplement B, Table B1.
- ⁶ The full set of measures is described in the supplementary materials, Supplement A, Table A1. We compare alternative measures of cultural variation in the supplementary materials, Supplement B, Table B2.
- ⁷ This index is available for only 64 countries in our sample. To expand the scope of analysis, we interpolate values of this index using Gelfand et al.'s (2011) methodology describing the predictors of CTL, particularly historical environmental conditions (disease prevalence) to interpolate values for of this index for all countries in our dataset.
- ⁸ We provide a full list of nations in our cross-national sample and the measures of CTL and new firm formation rates by nation in the online appendix, Supplement A, Table A2.
- ⁹ We provide a full list of states in our subnational sample and the measures of CTL and the rate of new entrepreneurs by state in the online appendix, Supplement A, Table A3.
- ¹⁰ If c' is significant, and both b_1 and b_2 are significant, we have evidence for *partial mediation*.
- ¹¹ We acknowledge the relatively strong positive correlation between CTL and social legitimation in the descriptive statistics (a Pearson correlation of 0.55). To ensure that this correlation does not obscure their conceptual distinction, we conducted a multicollinearity diagnostic (variance inflation factor [VIF]) to confirm that these two variables are not collinear. The VIF values were well below critical thresholds, providing reassurance that both constructs independently contribute to the model without inflating each other's effects.
- ¹² In our study, we used several IVs to estimate the influence of cultural tightness–looseness on new firm formation rates, based on their exogenous nature, validity, and noncorrelation with variables that have a direct influence on firm formation. The ecological vulnerability to natural disasters in an area and the prevalence of pathogen stress served as our primary instruments. Vulnerability to natural disasters, derived from ecological factors of the early 20th century, reflects how natural disasters can shape cultural norms, meeting the criteria of exogenous assignment and validity owing to their independence from human activity. Pathogen stress, based on historical epidemiological data, indicates how health challenges influence cultural development, satisfying both the exogeneity and validity conditions for our analyses.
- ¹³ We found that neither the Hofstede nor the World Values Survey measures of cross-national cultural variation explained variation in new firm formation rates across nations. While the Schwartz index showed a statistically significant coefficient with a “wrong” negative sign, indicating that increases in affective and intellectual autonomy correspond to lower new firm formation rates. The CTL construct has a positive coefficient and explains 56% of the cross-national variation in new firm formation rates, compared to 45.8% for the Schwartz index.

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