

**Informal institutions and leadership behavior in a developing country: A comparison
between rural and urban areas**

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Abstract: This paper explores the extent to which informal institutions influence leadership behavior in Mexico, distinguishing between urban and rural areas. Using the institutional approach and through logistic regression models with data obtained from the National Institute of Statistics and Geography (INEGI), the main results of the study show that transformational behaviors, social capital, and resilience are relevant informal institutions for leadership. However, the effect of social capital on leadership is stronger in urban areas than in rural ones, whereas transformational behaviors and resilience are salient characteristics that are mostly observed in rural zones. The theoretical, policy and managerial implications from these findings could contribute to advancing leadership research through the institutional lens.

Keywords: Informal institutions; leadership; transformational behaviors; resilience; social capital; developing country.

1. Introduction

The literature on leadership and its determinants has been abundant in recent years. For example, it has paid substantial attention to factors such as personality traits and identity (Harrison et al., 2015; Lord et al., 2017; Shao & Webber, 2006), cognitive and social skills (Epitropaki et al., 2017; Thomas et al., 2013), and socioemotional competences (Bass & Bass, 2008; Ng et al., 2019) for leadership development across countries, organizations, and individuals. The extant research has also emphasized that some of these factors emerge from socialization processes, creating a context in which institutions might affect the decisions of individuals to be or to act as leaders (Felix et al., 2020; Meador & Skerratt, 2017; Zehnder et al., 2017).

From the institutional perspective, it has been suggested that the institutional environment influences human behavior (North, 1990, 2005), particularly because there are formal (i.e. procedures, regulations, etc.) and informal factors (i.e. culture, attitudes, etc.) that create incentives for people to lead and carry out different activities. Scott (2007) also contributed to this distinction by suggesting that there are three institutional dimensions (regulative, normative, and cultural-cognitive) that affect the decision-making of organizations and individuals. Although formal institutions are important, due to their rapid change as policy mechanisms (Williamson, 2000), prior analyses of informal factors have tended to create better synergies with those antecedents of leadership behavior than formal factors. This is the case of cognitive and social skills as well as socioemotional competences, which may be associated with the cultural–cognitive dimension that are conducive to leadership (Cox et al., 2003; Felix et al., 2019). Accordingly, the literature has emphasized the importance of informal factors as key ingredients for productive activities, such as entrepreneurship and leadership behavior (cf. Dean & Ford, 2017 for a complete review). In fact, Felix et al. (2019) and Stephan and Pathak (2016) explored the clear association between

institutions, leadership, and entrepreneurship. Therefore, the existence of certain leadership styles, such as transformational or charismatic, complements the cultural values related to association (i.e. social capital) and risk management (i.e. resilience). Despite this, the extant literature has offered new insights into the relationship between institutions and entrepreneurship across (mostly developed) countries and among individuals. Then, there is still a lack of evidence about the influence of informal institutions on leadership behavior in developing countries.

Analyses of emerging economies have shown that plenty of disparities exist, including national and regional differences in human and cultural characteristics, which may be transmitted across generations (Hammad et al., 2020; Spolaore & Warczag, 2009), to such an extent that relevant divergence can emerge according to the context in which leadership is being developed (Etienoot et al., 2019; Stephan & Pathak, 2016). Although this premise has attracted the attention of scholars analyzing developing countries (e.g. Dau et al., 2020; Howell et al., 2007), there is still a paucity of research examining deeper differences, such as those between rural and urban communities. Unlike urban areas, rural zones might create particular environments for and incentives to adopt different leadership styles (Huettermann et al., 2014; Miles & Morrison 2020), characterized by tied associations and a sense of community (Gieling et al., 2019).

Therefore, distinguishing between urban and rural areas in Mexico, this paper explores the extent to which informal institutions influence leadership behavior. Institutional economics (North, 1990, 2005) frames the analysis of those informal institutions that the literature has considered most relevant to leadership research in recent years: transformational behaviors, social capital, and resilience (Dau et al., 2020; Egri & Herman, 2000; Stephan & Pathak, 2016). Using logistic regression models with data obtained from the National Institute of Statistics and Geography (hereafter, INEGI) in Mexico in 2014, we provide empirical evidence of the positive influence of

informal institutions on leadership. However, the effect of social capital on leadership is stronger in urban areas than in rural ones, whereas transformational behaviors and resilience are salient characteristics that are mostly observed in rural zones.

The main contributions of this study are the following. First, we show that the differences between leadership behaviors in Mexico are partly explained by the presence of informal institutions favoring leadership (von Rueden & Van Vugt, 2015; Yousafzai et al., 2015) in more developed contexts, such as urban versus rural areas. This empirical evidence leads us to our second contribution, advancing our understanding of institutional economics (North, 1990) as a framework in which to analyze leadership behavior, which may be derived from socialization processes. Notably, this research contributes to theory by developing the perspective on how transformational leadership emerges and operates in developing countries and rural areas (Miles & Morrison, 2020; Stephan & Pathak, 2016). Similarly, the configuration of resilience as a trait characteristic in these sorts of zones could serve to support our understanding of the existence and development of leadership (Harms et al., 2017). Finally, we contribute to managerial practice by discussing the importance of developing educational and regional programs (adapted to the specific context) to help promote leadership (Felix et al., 2019; Hammad et al., 2020). This work provides elements that can contribute to the strengthening of skills that encourage the gradual closure of social and economic gaps, particularly in Mexico. Therefore, this study helps to strengthen leadership research by analyzing this behavior in different regional contexts.

Hereafter, the paper comprises the following sections. In section 2, we review the literature on leadership and propose the hypotheses following the institutional approach. Thereafter, we outline the methodology in section 3, in which we explain the data and estimation technique.

Section 4 describes the main results. Finally, in section 5, we present the discussion and main conclusions.

2. Theory and hypothesis development

The literature has struggled to define or identify leadership in a systematic way, although it is a relevant outcome in psychology, sociology, and business studies (Banks et al., 2018). Part of the complexity has arisen because of the various approaches used to analyze leadership (Antonakis et al., 2019), which includes factors at the country, organizational, and individual levels. Epitropaki et al.'s (2017) multi-level review confirmed that cognitive traits, attitudes and abilities, and socioemotional and interpersonal competencies have a consistent correlation with leadership development. Nonetheless, little research has dealt with these relationships in different environments and contexts (Bullough et al., 2012; González-Cruz et al., 2019; Liden & Antonakis, 2009). Dau et al. (2020) and Meador and Skerratt (2017) stated that further analysis of the contextual factors may lead to greater insights into leadership and subsequently its link to business studies. Therefore, we aim to bridge this gap by using an institutional perspective to analyze leadership behavior (North, 1990, 2005).

Institutions represent the rules that guide and coordinate interactions among organizations and individuals (North, 1990, p. 3). As part of the socialization process, institutions emerge in societies to reduce uncertainty by providing a steady environment for interactions and complex exchanges (North, 1990, 2005). In a broad sense, institutions are either formal, for example contracts, laws, and regulations, or informal, such as codes of conduct, beliefs, conventions, and values, or rather a determined society's culture. Thus, informal institutions become the core of any culture, which is transmitted over generations (North, 1990, p. 37).

These foundations, built on the ideas of Weber (1978), have proved to be useful for comprehending the institutional basis of leadership (Dau et al., 2020; Meador & Skerratt, 2017). The social order principles described by Weber determine the parameters by which organizational forces are possible (Biggart & Hamilton, 1987). Weber did not refer to “institution” when framing his theory on development and leisure; however, his ideas of cultural systems or rules bear similarities to the extant understanding of institutions. Although leadership and management have not often been linked with the institutional perspective, their foundations are based on this approach (Urbano et al., 2019; Wallman, 2009; Zehnder et al., 2017). It should be noted that these ideas are primarily associated with the notion of informal institutions as a cultural characteristic that determines leadership.

The distinctions between informal and formal institutions remain open to debate, and the evidence suggests that informal factors are more conducive to leadership and entrepreneurial behavior than formal institutions (Felix et al., 2019; House et al., 2002; Stephan & Pathak, 2016). This is especially the case in emerging economies, where strong formal institutions and the rule of law are less apparent (Aparicio et al., 2016). Meador and Skerratt (2017) suggested that, where there is an absence of clear norms and state capacity, social interactions (including commercial exchanges) are highly conditioned by the informal institutions usually found in rural areas. Consequently, Meador (2019) showed that rural communities or groups, unlike those in urban areas, create bonds and connections among members of society, including resilience that is transmitted over generations. These characteristics help with the evolution and endurance of knowledge, customs, and habits (House et al., 2014).

In this regard, Mexico, and Latin America generally, is a nation that has important and tough unifying features in terms of socioeconomics, politics, and culture, as well as being a nation

with recognizable regional cultures (Howell et al., 2007). Therefore, leadership development is influenced by context and cultural values (Alipour, 2019). Collinge et al. (2010) and Wang (2020) emphasized the distinctions between leadership styles in different regional contexts, in particular those in rural and urban environments. Meador and Skerratt (2017) and Rodríguez-Pose (2013) suggested that leadership is potentially the “missing variable” for understanding the growth or languishment of individual places. On these grounds, researchers have agreed that place-based leadership is crucial for development (Beer & Clower, 2014; Meador, 2019). It has been suggested that communities must improve their leadership opportunities if their development prospects are to be maximized. Although a significant amount of research has been performed on communities and their effectiveness, it has mainly focused on examining the lives of those living in urban areas.

In 2010, 50.5% of the global population lived in an urban area. Over the next 40 years, all the population growth across the world is predicted to occur in urbanized cities (United Nations, 2011; World Bank, 2016). This is particularly the case for Mexico, as less than 43% of the population lived in urban areas in 1950. This proportion grew to 71% in 1990 and to 79% by 2015 (INEGI, 2010; United Nations, 2011; World Bank, 2016). Despite this undeniable trend, urbanization levels vary significantly across countries and regions. The population of rural Latin America is approximately 110–130 million (United Nations, 2014). The principal issue is that those who live in a rural area face greater inequalities in basic services, such as health, education, poverty, work opportunities, connectivity, and communication, making them more resilient (ECLAC, 2012). Informally, this resilience is complemented by the strategic connections that people encounter when confronting these social issues. Siegelman et al. (2019) stated that social capital has a vital role in filling the gaps that stem from inequalities. Consequently, the ECLAC (2012) emphasized that sociocultural factors are important for encouraging productive activities in these

areas and achieving sustainable development. These include individual abilities that lead to confidence in others, social development, and codes of conduct facilitating enriching, creative, and peaceful personal interactions. These are in addition to civic heritage, the foundations of which lie in the institutional mechanism for social equality to guarantee compliance with human rights. These factors are characteristic of individual leaders, who motivate others to work toward a common purpose that transforms communities and societies (Meador & Skerratt, 2017). Therefore, we approach informal institutions using three characteristics that have implicitly been identified as key elements in rural communities: transformational behavior, social capital, and resilience. These factors may show how components relating to well-known factors, such as traits and the leader–follower relationship, are observed from an institutional perspective (Dau et al., 2020; Felix et al., 2019; Stephan & Pathak, 2016).

2.1. Transformational leadership behavior

The concept of transformational leadership behavior involves interrelated characteristics such as idealized influence, vision and encouragement, intellectual stimulation, empathy, and coaching (Bass, 1985; Stephan & Pathak, 2016). This leadership style demonstrates some of the behaviors and features that are also characteristic of entrepreneurial leaders (Renko et al., 2015). For example, Egri and Herman (2000) performed an analysis of transformational leadership efficiency and the circumstances in which it occurs. Holten et al. (2018) found this leadership style to be stable across local and immigrant employees. This has particular appeal since cultural differences may exist between native and foreign workers that affect transformational leadership. However, the evidence highlights the characteristics that create a cultural atmosphere that motivates people to overcome their own differences and work on a common project. Wang et al. (2016) complemented this view

by investigating how team creativity is influenced by transformational leadership, finding that, when transformational leaders exist, cognitive diversity is properly encouraged.

This leadership behavior is the most desirable behavior in the majority of regions and cultures (Bamiatzi et al., 2015; Bass & Bass, 2008; Crede et al., 2019). Geier (2016) and Meador and Skerratt (2017) stated that leadership behavior changes or adapts between extreme and normal contexts and showed that, in more stable and normal environments, transformational leadership is dominant. This finding was similar to that of Stephan and Pathak (2016), who explored how transformational leadership evolves into a cultural aspect that conditions other activities, such as entrepreneurship. Similarly, Karakitapoğlu-Aygün and Gumusluoglu (2013) found that cultural context may influence the form and enactment of transformational leadership. This is particularly important in rural areas, where transformational leadership has contributed to rural communities becoming successful, particularly considering that this leadership is rooted in the human ideas of community (Wang, 2020). Transformational leadership builds an environment in which all individuals experience feelings of inclusion and appreciation, motivating them to improve their own satisfaction while promoting the well-being of the community (Martin et al., 2020) and advancing sustainable development within rural communities (Lobo et al., 2016). Transformational leadership encourages decision making, promotes local leadership, and offers the leadership skills required to handle the complex issues that rural communities face (Meador & Skerratt, 2017). Thus, as collective and individual interests align with transformational leadership, it is thought that the association of transformational behavior with leadership behavior varies depending on regional contexts. Therefore, it is suggested that:

H1a: Transformational behaviors increase the probability of becoming a leader in Mexico,
H2b: The influence of transformational behaviors on leadership is higher in rural areas
than in urban areas.

2.2. Social capital

Because transformational leaders are constantly creating bonds and connections, social capital has been recognized as important for individual success and performance (Meador & Skerratt, 2017; Moeller et al., 2016). Scholars have argued that individuals proactively develop associativeness and cohesion (Subramony et al., 2018) through the development and use of various networks of individuals (Ferris et al., 2005; Onitsuka & Hoshino, 2018). Social networks are comprised of various links between individuals: instrumental vs. psychosocial, homogeneity vs. heterogeneity, strong ties vs. weak ties, formal vs. informal, and so on. For example, the literature has started to explore the relationship between social capital and leadership (e.g. Anderson & Sun, 2015; Chen et al., 2016; Felix et al., 2020). Despite a sizeable quantity of the leadership literature focusing on the relationships between leaders and followers, empirical research has revealed that leaders usually spend considerable amounts of time with others both inside and outside of the organization (Eva et al., 2019). Certainly, leaders should construct effective personal relationships (Heifetz & Linsky, 2002; Onitsuka & Hoshino, 2018; White et al., 2016). Drawing on this idea, research has revealed that leadership is affected by personal networks (Subramony et al., 2018), which influence others (Bono & Anderson, 2005) and are related to greater career success (Spurk et al., 2019). The literature has also investigated how contextual factors have shaped the effectiveness of information gained from social ties (Han, 2015; Sharone, 2014).

The extant research has focused on the variations that have arisen from the type of information that is conveyed by social ties. Meador (2019) argued that, as information in local rural

communities is usually no longer relevant, contacts that can bridge structural holes can offer channels through which unique information can flow. Accessing good-quality information will increase the range of individuals' absorptive capacity, increase their capacity to communicate ideas of a wider variety of topics to more diverse audiences, and increase performance and persuasion (Aral & Alstynne, 2011). In the context of "information turbulence," strong ties may have greater value than weak ties (Onitsuka & Hoshino, 2018; Reagans & McEvily, 2003). The context may therefore determine social capital's value. The part played by networks has also been considered in leading communities (Wang, 2020) and regions (Sotarauta, 2010). Accordingly, the effect of social capital on leadership is expected to depend on the regional context as a consequence of the existence of different information levels. Hence, we posit the following:

H2a. Social capital increases the probability of becoming a leader in Mexico.

H2b. The influence of social capital on leadership is higher in urban areas than in rural areas.

2.3. Resilience

Depending on the institutional strength and communities' level of social capital, certain external shocks, such as economic, violent, or political crises, may affect some groups more than others (Lee et al., 2019). There are variations between people in their capability to restore their balance after a stressful period or event (Cheng et al., 2020). One way in which scholars have defined resilience is an individual's personal characteristics or traits, which encompass general sturdiness, resourcefulness, and flexible functioning when facing a challenge (Herrman et al., 2011; Luthar et al., 2000; Williams et al., 2017). Representing resilience scientifically as a personal attribute involves a risk as it can lead to the opinion that some individuals may not "have what it takes" to overcome adversity; this hinders our understanding of the underlying processes (Sutcliffe & Vogus,

2003). Meanwhile, others react with the social intention of helping those who have been affected by external shocks (Williams & Shepherd, 2016). This perspective is congruent with psychological research, which has focused on individuals' capacity to adapt and grow when faced with adversity (Masten & Reed, 2002; Williams et al., 2017).

Alternative perspectives view resilience as a cognitive and social process rather than as a personal skill (Farny et al., 2019; Rothstein & Burke, 2010). The extant evidence has shown that resilience needs to be analyzed from both a socioeconomic and a sociocultural perspective (Aparicio et al., 2018; Athota et al., 2020; Liu & Mishna, 2014). Research has indicated that leaders should have resilience to overcome adversity (Avey et al., 2011; Malott, 2016). Leadership can increase the resilience of individuals, groups, and communities. It can be formal, as in the case of local government, or informal, occurring via the actions of small groups or individuals (Hegney et al., 2008; Williams & Shepherd, 2016). It is clear that individuals who reside in rural communities face unique ecologies and life circumstances that differ hugely from those of urban populations (Meador & Skerratts, 2017). Thus:

H3a. Resilience increases the probability of becoming a leader in Mexico.

H3b. The influence of resilience on leadership is higher in rural areas than in urban areas.

3. Methodology

3.1. Data and variables

To test the suggested hypotheses, we used data from the National Institute of Statistics and Geography (INEGI, 2014), specifically the survey on Self-Reported Wellbeing (BIARE). This survey captures the key aspects of the subjective well-being of Mexico's adult population, as recommended by the Organisation for Economic Cooperation and Development (OECD). The original research database, representative at both the national and the state level, includes 39,274

observations from Mexicans, including 8,022 (20%) from rural areas and 31,252 (80%) from urban areas. Following the European Social Survey (ESS) this dataset measures subjective well-being, life satisfaction, and affective balance and gives information about sociodemographic characteristics, social life, socialization, and personal development. The survey also comprises four dimensions that constitute the main elements of motivation: perception of general life satisfaction, satisfaction with specific domains (e.g. house, job, etc.), eudemonia (referring to fulfillment as a goal for every human being), and affective state (INEGI, 2014). As a result of these strengths, BIARE has been largely used in social sciences when conducting research on well-being, security and leadership (Lara, 2019; Martinez-Martinez et al., 2018). Based on this reliable evidence, a set of dependent, independent, and control variables was obtained from this dataset combined with the World Development Indicators (WDI) from the World Bank.

Dependent variable

The dependent variable approaches leadership through the degree of control for a person to make important choices freely throughout their life. Renko et al. (2015) and Stephan and Pathak (2016) support this proxy by suggesting that decision makers are often leaders and are continually engaged in decision-making processes. Indeed, a decision making constitutes a primary leadership competence, which is largely assessed in prior literature exploring leadership models (cf. Antonakis et al., 2019; Lord et al., 2017). Replying on this literature, we measure leadership as a binary variable that takes the value of one if an individual in the INEGI survey answers the following question affirmatively: “Do you consider that you have been able to take important decisions freely throughout life?”; it takes the value of zero otherwise.

Independent variables

The INEGI survey was also helpful to obtain our independent variables. Accordingly, transformational behaviors, social capital, and resilience were used to represent informal institutions (Felix et al., 2019). A factor analysis was performed to obtain the variable transformational behaviors. Bass (1985), Crede et al. (2019), and Wang et al. (2016) identified transformational leadership components, which served as the basis to capture this variable (e.g. idealized influence, inspirational motivation, intellectual stimulation, and individual consideration). The questionnaire asked, “Could you tell me if you agree or disagree these sentences,” and it used a Likert scale with zero meaning strongly disagree and ten meaning strongly agree: “I like to learn new things” (a proxy for intellectual stimulation); “I feel that I have a purpose or mission in life” (a proxy for idealized influence); and “My life depends mainly on me” (a proxy for individual consideration). Lastly, the participants were asked if they agreed that “So far, I have reached the goals that are important in life for me” (a proxy for inspirational motivation). A Likert scale was used to measure this final component, with one meaning strongly disagree and seven meaning strongly agree. The factor analysis produced a single factor representing transformational behaviors with eigenvalues of more than one, explaining 68% of the cumulative variance. Reliability analysis was performed to measure the internal consistency of the four items loaded onto one factor. The Cronbach’s α values indicate an acceptable level of factor reliability (0.665). Nunnally (1978) stated that a value of α more than 0.50 ($\alpha > 0.050$) achieves the basic survey research requirements (see Appendix 2).

Regarding social capital, it is measured as a dummy variable taking the value of one if the individual is a member of a professional organization and zero otherwise. This variable is similar to that of similar research (Bojica et al., 2018; Crona et al., 2017; McGowan et al., 2015), which captured whether an individual belongs to different formal and informal associations. Our last

independent variable, resilience, is a dummy taking the value of one if the individual has experienced difficulties throughout life and the value of zero in other cases. Congruent with previous literature (cf. Andersson et al., 2019; Brooks et al., 2016; Dimas et al., 2018), this proxy captured individuals' capacity to move forward with projects irrespective of their problems.

Control variables

Due to the existence of unobservable characteristics, we used individual and economic variables, such as gender, educational level, household size (i.e. the number of children), responsibility, creativity, property ownership, job status, regional added value, and the context of living (rural vs. urban) as controls. In terms of gender, men and women may have general differences in leadership potential as a result of genetics and situational and social circumstances. Diversity in motives, values, skills, gender role identification, and self-confidence may affect the differences (Bass & Bass, 2008; Henry et al., 2015). In this regard, a dummy variable that represents gender (equal to one for male and zero otherwise) was introduced into our model. Regarding education, previous research has shown that education has a potential influence on individuals' innovative behavior and performance (Mumford et al., 2002). For this variable, we used the highest level of education that the respondent reported. Thus, our variable ranges from zero (no educational level attained) to nine (doctorate degree).

Similarly, we included other factors characterizing leadership behavior relating to power, responsibility, and creativity (De Hoog & Den Hartog, 2008; Hughes et al., 2018). Van Dijke (2020) indicated that power is required to operate groups and incentivize them to perform to the best of their ability. Some authors have approached power through household size, which has a high correlation with being the head of the household. Andrabi et al. (2012) suggested that, depending on the characteristics of the head and the number of offspring in the household, the

power exerted on children can transfer abilities and skills. We therefore approached power using a continuous variable capturing the number of children in the household. Concerning responsibility, it has been suggested that certain achievements are associated with autonomy and stem from the level of the individual's responsibility (De Hoogh & Den Hartog, 2008; Felix et al., 2019). Therefore, we included a seven-point Likert scale measuring the extent to which an individual declares that he/she totally disagrees (equal to one) or totally agrees (equal to seven) with the notion of having reached important life goals. Another relevant control when estimating leadership pertains to creativity (Hughes et al., 2018). Chow (2018) and Gong et al. (2009) used variables such as the desire to learn new things and self-efficacy to explore the relationship between creativity and leadership, respectively. Following these works, we also approached creativity through an 11-point Likert scale measuring whether an individual totally disagrees (equal to zero) or agrees (equal to 10) with the notion of wanting to learn new things.

The economic situation and context are also relevant when defining leadership (Antonakis et al., 2003; Felix et al., 2020). To capture individual wealth, we used two dummy variables representing whether the individual has purchased a house (property ownership equal to one and zero otherwise) and has either gained employment or opened a business during the last 12 months (job status equal to one and zero otherwise). Regarding the type of context, two variables were included. First, the value added as the net output of agriculture (for those in rural areas) as well as industry and services (for those in urban areas) served to indicate the level of GDP (this variable comes from the WDI). Second, we controlled for the rural area, which was equal to one if the respondent lives in this context (zero otherwise). It is worth noting that the definition of rural areas has undergone considerable changes, so there are no objective criteria. However, the INEGI stated that, in Mexico, a community is deemed to be rural when it has fewer than 2500 inhabitants and

urban when the population is greater than 2500 (INEGI, 2010).

3.2. Data analysis and model

As leadership is a dummy variable, we analyzed the influence of informal institutions on our dependent variable employing logit models (McFadden, 1983). Binary response models lengthen the generalized linear model principles to improve the treatment of the dichotomous dependent variable. The probability that an event will happen is estimated using the binomial logistic model, which captures the change from the initial status (e.g. “zero”) to the final status (e.g. “one”). In our case, we assumed that such changes are fostered by informal institutions as well as by individual and regional control variables. Thus, an individual who is considered to be a non-leader has utility stemming from becoming a leader. This exceeds any individual utility earned from remaining a non-leader. Hence, the likelihood of moving from one decision to another can be expressed as follows:

$$\begin{aligned}\Pr(Y_i = 1) &= \Pr(L_i = 1 | I_i, X_i = 0) \\ &= \Pr(U_i^L > U_i^{non-L} | U_i^L \leq U_i^{non-L}) \\ &= F(\varphi' I_i + \lambda' X_i + \mu_i) \quad (1)\end{aligned}$$

where $Y_i = 1$ if an individual i chooses leadership (L) and $Y_i = 0$ if the individual prefers to be a non-leader (non-L). In Equation 1, φ and λ represent the coefficients of informal institutions (I_i) and control variables, respectively, whereas parameter μ_i denotes the residuals, which include unobserved heterogeneity. The $F(\cdot)$ is specified as the logistic distribution function, which is approached econometrically through the equation below:

$$P = \frac{1}{[1 + e^{-(a + bx')}] } \quad (2)$$

where P is the estimated likelihood and (x') represents the linear combinations of independent and control variables. McFadden's (1983) seminal paper suggested that estimating Equation 1 through

the approach taken in Equation 2 requires support from asymptotic theory. This leads to the capturing of parameters φ and λ (embedded in b) through maximum likelihood estimation methods. Hence, different iterations (i.e. derivatives) are carried out to the point at which the maximum value of the main parameters is found. This entails the function being continuous across the sample distribution; otherwise, Equation 2 does not reach a solution.

Cameron and Trivedi (2005) stated that the existence of non-linear models helps to remedy any potential bias that can result from traditional ordinary least square estimations, which can artificially inflate the effects of independent variables on categorical dependent ones. The binary approach can be used to compute estimation values (i.e. the b array) as well as marginal effects. Unlike linear probability models, which only consider the average value of estimation (bs), non-linear models, such as logit or probit models, condition the average value on the existing categorical values (McFadden, 1983). However, Cameron and Trivedi (2005) suggested that models with a binary response may have issues with independence from irrelevant alternatives since they create analyses based on extreme values (zero or one). In our case, this means that making the decision to be a leader immediately implies that the individual is not making other decisions. The problem with logit models is that we do not know of the existence of any alternatives. McFadden (1983) suggested that adopting more flexible approaches, for example multinomial logit or sequential logit models, may help to resolve any potential biases. Nonetheless, the implication is that more categories should be available in the dataset. Since we were constrained by the strengths and weaknesses of the BIARE, we were reliant on the logistic approach, which remains useful when attempting to understand the probability of being a leader and the way in which informal institutions marginally affect this likelihood.

4. Results

Table 1 presents the descriptive statistics. This table shows important differences in terms of urban and rural areas in Mexico. For example, the level of leadership behavior is higher in urban (93.50%) than in rural zones (88.83%). A similar pattern can be observed in other variables, such as social capital (5.04% vs. 2.02%), resilience (58.32% vs. 56.46%), and property owner (14.34% vs. 7.70%). Table 2 presents the correlation matrix. The results in this table show that there is a relatively high correlation between the variables. However, a highly simple correlation is frequently interpreted as indicating a possible collinearity issue; therefore, the approach can be deceiving (Bowen & De Clercq, 2008). A more precise way to detect collinearity calculates the data matrix's condition number; when the condition value exceeds 30, collinearity might be an issue (Belsley et al., 1980). Our data matrix's condition number is 11.678, which indicates that collinearity is less of a problem than an inspection of the simple bivariate correlations implies.

-- Table 1 about here --

-- Table 2 about here --

Table 3 shows the logistic regression model results for informal institutions and leadership. Model 1 shows the logistic regression results with only control variables, whereas Model 2 comprises the full model with all the variables. In regard to the developmental level across rural and urban areas, two main strategies were applied. First, Models 3 and 4 differentiate the urban and rural subsamples, respectively; and, second, Models 5, 6, and 7 include the interaction terms capturing the influence of the regional context on the association between informal factors and leadership, considering, respectively, transformational characteristics, social capital, and resilience.

-- Table 3 about here --

To explain the impacts on leadership of the informal factors, we added the informal institution variables in Model 2 to the control variables, including transformational leadership, social capital, and resilience. The overall model is significant because the log pseudo-likelihood statistic is 7608.430, with a p-value of 0.000, which correctly predicts 92.55% of the responses, even though the percentage is marginally lower than that in Model 1; the pseudo R-squared increases to 0.0760. By calculating the Akaike information criterion (AIC), we also assessed the goodness of fit of the different models. Based on the entropy concept, this index offers an operational way to trade off an estimated model's complexity against its fit with the data (Greene, 2004). The difference in the number of variables included in a model is also adjusted for, whereby a lower AIC value is indicative of a preferable model. The results demonstrate that Model 2 has better goodness of fit than Model 1, which explains the probability of an individual becoming a leader. For purposes of robustness, the same models were tested using a different technique, specifically the linear probability approach. The results in Appendix 1 are consistent with those in Table 3.

Regarding the hypothesis testing, hypothesis 1a (H1a) suggests that the probability of becoming a leader in Mexico is increased by transformational behaviors. Nevertheless, hypothesis 1b (H1b) proposes that the influence of transformational behavior is stronger in rural areas than in urban areas. Supporting H1a, this variable's coefficient is statistically significant and positive, indicating that individuals with transformational behavior are on average 1.8% (Model 2) more likely to be leaders. Also, a higher positive coefficient of transformational leadership can be seen in rural communities (Model 4) than in urban communities (Model 3), supporting H1b. Previous research has shown that transformational leadership can improve team decision-making skills

(Dionne et al., 2004; Wang et al., 2016). Transformational and charismatic leadership is reflective of a historical leadership tradition in countries such as Mexico (Bottomley et al., 2016). This is consistent with other studies (cf. Meador & Skerratt, 2017), indicating that this type of leadership can have greater efficacy in collectivist cultures like Mexico.

Hypothesis 2a (H2a) proposes that social capital increases the probability of becoming a leader in Mexico. However, comparing individuals in urban and rural zones, hypothesis 2b (H2b) suggests that the influence of social capital is weaker in rural areas than in urban areas. Consistent with the prediction of H2a, this variable's coefficient is significant and positive, indicating that individuals with social capital are 2.8% (Model 2) more likely to be leaders. The results show consistency with the leadership literature (Felix et al., 2020; Meador, 2019; Subramony et al., 2018). Similarly, these results also concur with Mexican society, in which personal family and friend networks are the main support source for Mexicans and other Latin Americans. Mexicans foster intimate support systems through cooperatives and associations in different sectors, although these are dominant in rural areas (Crona et al., 2017). Positive interpersonal relationships are therefore a fundamental factor that causes Mexicans to view a leader as effective (Howell et al., 2007). H2b also suggests that social capital has a greater influence on the probability of becoming a leader in an urban than a rural context. Social capital was significant and positive in an urban context (Model 3) but did not show significance in a rural context (Model 4), partially supporting H2b. Nevertheless, in Mexico, social networks have a role in managing and distributing knowledge to produce development at both the regional and the local level, particularly in a rural context (Nuñez et al., 2014).

Finally, hypothesis 3a (H3a) posits that resilience increases the probability of becoming a leader in Mexico. However, the influence of resilience is greater in rural areas than in urban areas

(H3b). It was observed that the coefficient of this variable is small but positive and significant (1% in Model 2), supporting H3a. The coefficient of resilience is also greater in rural areas (Model 4) than in urban areas (Model 3), which supports hypothesis 3b (H3b). Several authors have described positive emotions, resilience, and character as necessary for leadership to be effective (e.g. Luthans et al., 2007; Riggio & Lee, 2007; Williams et al., 2017). Recent studies have examined the crucial differences in the nature and response to stressors in rural areas in comparison with urban areas, emphasizing that people display resilience in regard to contextual factors (Judd et al., 2006; Wang, 2020; Williams & Shepherd, 2016). Countries such as Mexico, or even Latin America as a whole, may explain why this quality is important in leadership, as their cultures have higher levels of uncertainty avoidance and consequently a low preference for change and ambiguity (Hofstede, 2001; House et al., 2014).

To complement the previous subgroups' perspective, we also analyzed the interaction effects, in which the moderator is a binary variable. Andersson et al. (2014) suggested that groups' analysis can be also seen through interactions. Hence, we aimed to determine complementarily whether the regional context alters the relationship between the independent and the dependent variables by adding rural areas as an interaction term (Models 5, 6, and 7). An interaction term for regional context was added to the transformational behavior variable in Model 5. Accordingly, the interaction term measured the influence of rurality on the informal institutional variable and found that transformational behavior has a positive and significant effect on leader behavior in rural areas, although the interaction term that relates to residing in a rural area and the presence of transformational behavior decreases the probability of being a leader. This may be because the regional context significantly affects the way in which individuals use specific transformational behaviors (Beer & Clower, 2014). In Model 6, we included the same interaction affecting the

influence of social capital on leadership. Social capital was found to have a non-significant positive effect on leadership behavior in rural areas. Therefore, we observed that the interaction term including both social capital and rural areas reduces the likelihood of becoming a leader. The level of non-significance may suggest that the association of social capital with leadership is weaker in a rural context. Other research has considered the role of social capital in communities in which people grow up, live, and work. In this case, it is less likely that new and innovative ideas (from the outside) will enter those environments (Jones, 2005). Finally, in Model 7, an interaction term for regional context was added to the resilience variable. The interaction term in this model was statistically significant, suggesting that the relationship between resilience and the likelihood of becoming a leader depends on the regional context, which concurs with the work of Meador (2019).

5. Discussion and conclusions

Distinguishing between urban and rural areas in Mexico, we attempted to explore empirically how informal institutions influence leadership behavior. Institutional economics (North, 1990, 2005) allows the observation of the mechanisms behind this relationship. Data from BIARE (INEGI, 2014) and the World Bank's WDIs were used in logit models to perform a quantitative assessment of these relationships. Our main thesis was supported; that is, transformational leadership, social capital, and resilience increase the probability of being a leader. The greatest leaders are aware that they should mediate, listen to, and include the opinions of other people before reaching a decision. Execution, team building, and delegation are vital, as is remaining positive in the face of adversity (World Economic Forum, 2015). Although other prior studies have focused on transformational leadership as an explanatory institutional factor (Stephan & Pathak, 2016; Wang et al., 2016), their outcomes were different from those of our study. In regard to social cognition, our belief is that transformational attitudes incentivize others to become leaders, which provides insights into certain

characteristics, such as creativity and entrepreneurship. Social capital and resilience have also been explored in other studies (Chen et al., 2016; Felix et al., 2020; Williams & Shepherd, 2016), although the existing empirical evidence still generally relies on multilevel analysis (i.e. countries, organizations, and individuals), leaving more scope for the exploration of such factors in the rural versus the urban context.

Thus, this research adds to the literature on regional development and leadership by conducting an examination of the interplay between the regional context and the institutional factors in the decision to be a leader. This interactional effect is statistically significant and negative, allowing the relationship between informal institutions and leadership to differ between people who live in rural and urban contexts. Understanding the influence of informal institutions (approached via transformational behaviors, social capital, and resilience) on leadership can help to advance the self-development field in leadership and intrapersonal content issues and increase the understanding of the influence that context has on leadership. Sociocultural factors have been conceptualized as contextual variables that are likely to moderate leadership effects (Antonakis et al., 2003; Dau et al., 2020; Felix et al., 2019). In this regard, the regional context should be understood in terms of leader development. Thus, this work differentiated leadership formation in urban and rural environments in Mexico.

Certainly, more developed contexts, for example urban communities and informal institutions, strengthen leadership development. Nonetheless, the effects of each informal factor on leadership can differ according to the context. For example, extant research has focused on cases in developed countries, such as the US (Meador, 2019), Finland (Sotarauta, 2010), and Japan (Onitsuka & Hoshino, 2018). In most of these cases, the creation of networks was crucial to reduce the risks associated with decision making; this is also consistent with evidence from some

developing countries, such as China (Shao & Webber, 2006; Wang, 2020). We also showed that networks matter for rural areas, although it seems that other factors are more important in these zones when compared with urban areas. Given the institutional instability in Mexico, where a high level of poverty exists, especially in rural areas, the development of leadership skills seems to respond to a transformational attitude and resilience. This idea is consistent with Wang (2020), who suggested that the absence of a solid institutional framework (i.e. a top-down structure) leads to a bottom-up reaction, which entails individuals in rural areas making decisions based on their institutional arrangements. Less lagged rural regions show people characterized by transformational attitudes (Shao & Webber, 2006). We provide insights into this idea by suggesting that resilience has become crucial to support transformational initiatives in adverse institutional contexts, such as rural areas in Mexico.

There is a clear need to find and promote models of skills, competence, and styles of behaviors in less and more developed contexts in Mexico and Latin America. Therefore, this paper tried to highlight issues in regard to how leadership contributes to community development (Meador & Skerratt, 2017), considering theoretical, managerial, and policy implications.

5.1. Theoretical implications

Our analysis suggests that leadership is necessary for urban areas and better contests as rapid (but costly) decisions are made daily, yet we emphasize the importance of leadership for rural communities (Meador & Skerratt, 2017; Naldi et al., 2015). Leadership is especially important within communities to provide direction and vision as well as to develop the trust and support required in community settings (Maley & Moeller, 2014; Ricketts & Ladewig, 2008). All these elements are common in the institutional perspective (North, 1990), which is mostly associated

with the formation of a regulatory system (Djankov et al., 2002) and the existence of a particular culture (Felix et al., 2019).

From a theoretical perspective, North's (1990, 2005) ideas are consistent with the economic development process. Accordingly, productive activities are framed and conditioned by the institutional context, which differs between countries. North (2005) explained that the differences are cultural as well as geographical, implying that certain societies have developed coordinated socialization processes that are appropriate for their environment. Indeed, House et al. (2014) made an important endeavor to represent such societies, in which culture defines the strategic decisions of companies. However, these analyses are still at the country level. We introduced another perspective on the comprehension of the institutional context in rural and urban areas as the developmental stages of these regions differ significantly from those of emerging economies. These notions have recently been applied to the subnational level, particularly to the analysis of leadership in rural areas (Meador & Skerratt, 2017). It seems that the rural context has created incentives for different individual decisions related to associativeness and cohesion (Meador, 2019). However, other societies have tended to work in isolation, which has therefore created more limited contexts. This could be a problem associated with a lack of leaders driving productive projects for their communities. It could also be a problem of violence, which seeds panic among communities, as is happening in Mexico (Acemoglu et al., 2020). We contribute to the institutional approach and the related literature by showing that the formation of resilience and a transformational culture are embedded informal institutions that explain not only intentionality toward progress (North, 2005) but also capabilities that are useful for cohesive groups with clear leaders seeking the development of communities. On this point, Friedman (2000) explained that rural culture is entrenched in its own institutional social organization framework and that this is

crucial for appropriately formulating a rural developmental strategy. Although transformational leadership seems to be a model that can be of benefit to rural communities, further research is required to assist leaders in understanding this theory in detail so that changes in rural areas can be brought about more effectively. Recognizing this complex relationship between sociocultural context and leadership (Dau et al., 2020; Stephan & Pathak, 2016; Zehnder et al., 2017) is crucial to understanding the success or the failure of cities and regions (Beer & Clower, 2014). The importance of institutions for leadership shows a lack of research that has explored leadership from an institutional perspective (Meador & Skerratt, 2017; Wallman, 2009).

Transformational leadership behaviors indicate that there are some practical applications to address the issues in leadership that face rural communities (Meador & Skerratt, 2017; Yukl, 2006). Dawe and Bryden (1999) suggested that transformational leaders, strong motivational culture, and communities' history determine rural development.

5.2. Practical implications

Practitioners should pay attention to a leadership model that has better compatibility with rural or urban lifestyles. Nübold et al. (2015) indicated the importance of selecting and developing leaders who act as role models, display ethical behaviors, and promote objectives that contribute to the good of the organization. This implies that well-established companies and new entrants can provide specific examples of how different decisions stimulate leadership behavior in others, who consequently might lead projects with social purposes. Undoubtedly, governments play a key role in producing the conditions for leadership to emerge. Therefore, an appropriate leadership model for both urban and rural communities should take these factors into consideration if it is to be effective in enabling development and change.

The quality of social capital should also be promoted and strengthened, primarily the social capital reinforcing the ability to think, decide, and act as leaders while inviting others to be part of the common objective. This is vital in life and for social processes. Organizations and institutions should support critical thinking, discussion, inclusion, and diversity so that more leaders can be developed. Despite the conditions of socioeconomic marginalization in Mexico and other Latin American countries, social capital may be able to help communities to improve their abilities to innovate and invent the social construction of knowledge and its potential for promoting knowledge and rural development dynamics, at both the community and the regional level (Nuñez et al., 2014).

Finally, resilience is important in social development processes and should be strengthened to challenge adversity, such as that occurring in rural communities (OECD, 2012). In such contexts, equal opportunities should be encouraged for learning and to reinforce individuals' motivation to develop their potential and therefore to develop leadership. It is important for institutions such as families, schools, and society to promote the capability to overcome and progress. Bass and Bass (2008) stated, as an example of resilience, that Eleanor Roosevelt was treated as an ugly duckling by her family, but she overcame her shyness to become a world-class leader.

5.3. Policy implications

At the public policy level, our analysis of transformational attitudes, social capital, and resilience can provide insights into the possible mechanisms for encouraging leadership among individuals. In particular, leadership development in Mexico should be professionalized, implying that rules and regulations should be created to encourage universities to create solid educational programs, which should be adapted to rural and urban contexts.

Despite efforts to reduce the disparity between regions with high and low levels of economic activity, there remains an uneven distribution of successful development between urban

and rural areas (Desdemoustier et al., 2019; Meador & Skerratt, 2017; Naldi et al., 2015). Policymakers should now focus on the contribution of leadership to growth at the regional and local levels (Beer & Clower, 2014; Esparcia et al., 2015) since it may facilitate the prosperity of communities (Collinge et al., 2010; McCann, 2013). This implies that policymakers should be able to recognize that rural and urban areas might differ in their social configuration and leadership styles because of the environment that frames different decisions. In addition, as Mexico notoriously has serious inequality problems, different policies should encourage the active participation of civic society and organizations in contributing to the improvement of rural living conditions. Commitment and leadership are important abilities when working with rural communities in a close partnership (Hernández et al., 2015). Poverty in Mexico's rural areas remains an unresolved issue. The experience of civil society and organizations in other nations shows that they could be governmental partners in contributing to rural development (Székely & Mendoza, 2017).

Because of the complexity involved in leadership as a productive activity, there is a need for a clear diagnosis of the influence of the current number of leaders on regional performance. Methods are required to uncover the essential micro and macro leadership aspects that play an important role in reinventing regions and localities, therefore resolving new dilemmas of uneven development.

5.4. Limitations and future research directions

We recognize that our study has its limitations. Having a single country (Mexico) might constrain the analysis. Yet, scholars analyzing Latin American countries could find our results inspirational for comparisons across different economies in the region. The cross-sectional nature of BIARE (INEGI) does not allow a causality assessment. Future research should use a longitudinal design to

examine this relationship, which might capture institutional change. Consequently, further cross-cultural research is encouraged. Additionally, this research has not directly addressed leader efficacy. It is clear that this is the required “next step” in conducting additional research to generate other insights useful for managers and scholars interested in leadership. Additional research is also required to understand the effect of the institutional context as a broad concept (regulative, normative, and cultural-cognitive) (Scott, 2007) on leadership. The cultural-cognitive dimension takes into consideration the ideas that internal interpretive processes are influenced by institutional frameworks and that the behavior of an individual is dependent on interpreting the contexts and the consensus within the group of reference. Further research could expand the cultural-cognitive dimension to advance understanding of behavioral sciences, highlighting the role of leadership.

5.5. Conclusions

It is increasingly evident that the regions that are prospering both socially and economically are those with strategic thinking and effective leadership at every level of the community, local businesses, and industries (Hegney et al., 2008). Many studies have investigated how organizations can develop leaders through the identification of gaps in strength and performance, provide support, and pose developmental challenges (e.g. Spreitzer, 2006). Organizations can offer various programs and interventions, for instance career planning, mentoring programs, and 360-degree feedback. Researchers and practitioners must understand which developmental method could be the most useful for a specific competency or challenge and which method is the most appropriate for which culture (Gentry et al., 2014). We hope that this study encourages other scholars to focus on the dynamic links between informal institutions and leadership in different types of economies and cultural environments. We also invite further research into the stories and profiles of leaders, who, according to their context, seek to build a better society.

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Tables

Table 1. Descriptive statistics

Variables	General sample		Urban Areas		Rural Areas	
	No = 0	Yes = 1	No = 0	Yes = 1	No = 0	Yes = 1
Leadership behavior	7.460	92.540	6.500	93.500	11.170	88.830
Social Capital	95.580	4.420	94.960	5.040	97.980	2.020
Resilience	42.060	57.940	41.680	58.320	43.540	56.460
Gender	26.490	73.510	27.590	72.410	22.210	77.790
Property owner	87.020	12.980	85.660	14.340	92.300	7.700
Employment	82.820	17.180	82.140	17.860	85.460	14.540
Rural areas	79.570	20.430				

Variables	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Transformation Leadership	0.000	0.801	0.034	0.782	-0.134	0.859
Education	3.301	2.013	3.542	2.049	2.363	1.536
Number of children	3.133	2.240	2.970	2.105	3.743	2.595
Responsibility	5.443	1.468	5.465	1.459	5.352	1.494
Creativity	9.208	1.317	9.250	1.272	9.045	1.469
Value added (% GDP)	73.602	35.702	91.689		3.135	

Table 2. Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Leadership behavior	1												
2. Transformation Leadership	0.161	1											
3. Social Capital	0.041	0.054	1										
4. Resilience	0.012	-0.067	0.007	1									
5. Gender	0.015	0.020	0.006	-0.075	1								
6. Education	0.128	0.199	0.179	-0.015	0.062	1							
7. Number of children	-0.095	-0.129	-0.050	0.003	-0.042	-0.293	1						
8. Responsibility	0.108	0.433	0.050	-0.124	0.011	0.105	0.014	1					
9. Creativity	0.125	0.711	0.034	-0.034	0.025	0.166	-0.147	0.176	1				
10. Property owner	0.055	0.083	0.101	0.018	0.040	0.195	-0.101	0.040	0.069	1			
11. Employment	0.015	0.034	-0.036	0.055	-0.018	0.008	-0.103	-0.076	0.058	0.073	1		
12. Value added (% GDP)	0.072	0.085	0.059	0.015	-0.049	0.236	-0.141	0.031	0.063	0.080	0.036	1	
13. Rural areas	-0.072	-0.085	-0.059	-0.015	0.049	-0.236	0.141	-0.031	-0.063	-0.080	-0.036	-0.036	1

Correlations in bold are significant at $p < 0.01$. Std. Dev. Standard deviation.

Table 3. Estimating leadership through Logit models

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Only Control variables		General Model (H1a, H2a, H3a)		Urban Areas (H1b, H2b, H3b)		Rural Areas (H1b, H2b, H3b)		General Model (Complementary to H1b)		General Model (Complementary to H2b)		General Model (Complementary to H3b)	
	dF/dx	Std. Err	dF/dx	Std. Err	dF/dx	Std. Err	dF/dx	Std. Err	dF/dx	Std. Err	dF/dx	Std. Err	dF/dx	Std. Err
<i>Direct effects</i>														
Transformational behaviors			0.018***	0.002	0.017***	0.002	0.023***	0.006	0.020***	0.002				
Social capital			0.028***	0.006	0.027***	0.005	0.019	0.028			0.032***	0.006		
Resilience			0.010***	0.003	0.005**	0.003	0.028***	0.007					0.005*	0.003
<i>Controls</i>														
Gender	-0.001	0.003	-0.001	0.003	-0.001	0.000	0.001	0.009	-0.002	0.003	-0.002	0.003	-0.001	0.003
Education	0.013***	0.001	0.012***	0.001	0.010***	0.001	0.019***	0.003	0.012***	0.001	0.013***	0.001	0.013***	0.001
Number of children	-0.003***	0.000	-0.003***	0.000	-0.002***	0.000	-0.004***	0.001	-0.003***	0.000	-0.003***	0.000	-0.003***	0.000
Responsibility	0.011***	0.001	0.007***	0.001	0.007***	0.001	0.008***	0.003	0.007***	0.001	0.010***	0.001	0.011***	0.001
Creativity	0.009***	0.001	0.002*	0.001	0.002	0.001	0.004	0.003	0.002*	0.001	0.009***	0.001	0.009***	0.001
Property ownership	0.020***	0.004	0.018***	0.004	0.015***	0.004	0.034**	0.013	0.019***	0.004	0.019***	0.004	0.020***	0.004
Job status	0.011***	0.003	0.009***	0.003	0.005	0.003	0.034***	0.010	0.009***	0.003	0.011***	0.003	0.010***	0.003
Value added (% GDP)	0.000***	0.000	0.000***	0.000	0.000	0.000	0.000	0.000	0.000***	0.000	0.000***	0.000	0.000***	0.000
Rural areas=1	0.000	0.001	0.000	0.001					0.000	0.001	0.000	0.001	0.000	0.001
<i>Interactions</i>														
Transformational behaviors														
x Rural areas									-0.006**	0.003				
Social capital x Rural areas											-0.041	0.039		
Resilience x Rural areas													0.013***	0.005
Observations	31097		31097		24536		6561		31097		31097		31097	
Probability	0.939		0.941		0.949		0.902		0.941		0.940		0.940	
LR Chi-Square statistic	1138.06		1248.59		875.18		243.92		1224.87		1156.16		1158.53	
Pseudo R-squared	0.069		0.076		0.075		0.053		0.074		0.071		0.071	
Log pseudolikelihood	-7663.696		-7608.430		-5426.577		-2170.885		-7620.291		-7654.642		-7653.459	
Percentage correctly predicted	92.56%		92.55%		93.55%		88.87%		92.57%		92.55%		92.56%	
AIC	15345.39		15240.86		10875.15		4363.771		15262.58		15331.29		15328.92	

* Significant at p < 0.1; ** significant at p < 0.05; *** significant at p < 0.01.

Appendix 1. Main results with linear probability models

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Only Control variables		General Model (H1a, H2a, H3a)		Urban Areas (H1b, H2b, H3b)		Rural Areas (H1b, H2b, H3b)		General Model (Complementary to H1b)		General Model (Complementary to H2b)		General Model (Complementary to H3b)	
	b	Std. Err	b	Std. Err	b	Std. Err	b	Std. Err	b	Std. Err	b	Std. Err	b	Std. Err
<i>Direct effects</i>														
Transformational behaviors			0.031***	0.003	0.031***	0.003	0.032***	0.007	0.030***	0.003				
Social capital			0.016**	0.007	0.017**	0.007	0.006	0.028			0.017**	0.008		
Resilience			0.012***	0.003	0.008**	0.003	0.030***	0.008					0.007**	0.003
<i>Controls</i>														
Gender	0.001	0.003	0.002	0.003	0.002	0.004	0.004	0.009	0.001	0.003	0.001	0.003	0.002	0.003
Education	0.011***	0.001	0.010***	0.000	0.009***	0.001	0.016***	0.003	0.010***	0.001	0.011***	0.001	0.011***	0.001
Number of children	-0.006***	0.001	-0.006***	0.001	-0.005***	0.001	-0.006***	0.002	-0.006***	0.001	-0.006***	0.001	-0.006***	0.001
Responsibility	0.014***	0.001	0.009***	0.001	0.010***	0.001	0.008***	0.003	0.009***	0.001	0.014***	0.001	0.015***	0.001
Creativity	0.017***	0.001	0.005***	0.002	0.004**	0.002	0.007*	0.004	0.005***	0.002	0.017***	0.001	0.017***	0.001
Property ownership	0.015***	0.005	0.013***	0.005	0.012**	0.005	0.025*	0.015	0.014***	0.005	0.015***	0.005	0.015***	0.005
Job status	0.013***	0.004	0.011***	0.004	0.006	0.004	0.034***	0.012	0.012***	0.004	0.013***	0.004	0.012***	0.004
Value added (% GDP)	0.000***	0.000	0.000***		0.000	0.001		0.000	0.000***	0.000	0.000***	0.000	0.000***	0.000
Rural areas=1	0.000	0.001	0.000	0.001					0.000	0.001	0.000	0.001	0.000	0.001
<i>Interactions</i>														
Transformational behaviors x rural areas									0.005	0.004				
Social capital x rural areas											0.000	0.024		
Resilience x rural areas													0.024***	0.007
Observations	31097		31097		24536		6561		31097		31097		31097	
R-squared	0.039		0.043		0.039		0.038		0.042		0.039		0.040	
AIC	3811.869		3679.196		3686.353		3697.624		3810.456		15331.290		3788.808	

* Significant at $p < 0.1$; ** significant at $p < 0.05$; *** significant at $p < 0.01$.

Appendix 2. Factor analysis for transformational behaviors

Transformational behaviors	Factor
Intellectual stimulation	0.725
Idealized influence	0.811
Individual consideration	0.768
Inspirational motivation	0.503
Eigenvalue	2.025
KMO	0.705
Cronbach's α	0.665