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Entrepreneurship and social capital: a multi-level analysis

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Abstract

Purpose – The purpose of this paper is to examine the relationship between an individual's social capital context and entrepreneurship using a multi-level modelling framework.

Design/methodology/approach – This paper uses data from 87,007 individual level observations across 428 regions in 37 countries. The data comes from the 2010 and 2016 Life in Transition Surveys. The paper uses a principal component analysis to identify the different dimensions of an individual's social capital context. Subsequently, a multi-level model is employed examining the relationship between the components of an individual's social capital context and entrepreneurship (which is proxied by an individual's attempt to set up a business), whilst controlling for both country and regional effects.

Findings – Greater levels of networking, informal connections and tolerance of others have a significant positive relationship with entrepreneurial activity. Trust of institutions and others have a negative relationship with entrepreneurial activity. Regional and country differences are also important for entrepreneurship, demonstrating the importance of the multi-level and social contextual environment for business development.

Originality/value – Firstly, the authors present a broad, but comprehensive social contextual framework incorporating many measures of social capital when examining the importance of social capital for business development. Secondly, the work provides interesting results on the "bright and dark sides of trust" for entrepreneurship, answering calls for improved understandings on the positive and negative relationships between social capital and entrepreneurial activity. Thirdly, the paper extends the burgeoning but limited number of studies that examine the multi-level contextual environment of entrepreneurial activities.

Keywords Entrepreneurship, Social capital, Business development

Paper type Research paper

1. Introduction

Entrepreneurship is an essential driver of innovation, societal health and wealth and is a critical agent of economic growth (Bosma *et al.*, 2020; OECD, 2017; Schumpeter, 1934) Consequently, encouraging entrepreneurship is an important policy objective for most policy makers and governments (Bosma *et al.*, 2020; Lerner, 2014; Ludstrom and Stevenson, 2005). The bulk of literature examining entrepreneurial intention and activity has largely focused on the characteristics of individuals (Stam *et al.*, 2008) the role of socio-economic and demographic factors (Shirokova *et al.*, 2016; Stam *et al.*, 2008), self-efficacy (Boyd and Vozikis, 1994), perceptions (Arenius and Minniti, 2005) and self-identity (Obschonka *et al.*, 2015). Whilst entrepreneurial activity have been found to be a product of an individual's personal characteristics; more recently the configuration of the entrepreneur's operating environment, as well as their relative position in society are increasingly recognised as pivotal factors driving entrepreneurship (Estrin *et al.*, 2013; Kibler *et al.*, 2014).

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Entrepreneurship is shaped to a large extent by social norms and economic constraints (Jack and Anderson, 2002; Reynolds *et al.*, 2003). The entrepreneur's social, spatial, and institutional contexts set the scene for entrepreneurship and these contexts can vary dramatically from one region to another (Welter, 2011). In this paper, the authors focus on the societal context of entrepreneurship across a large sample of countries and regions. The specific research question of the paper is what relationship exists between an individual's social capital context and entrepreneurship (which is proxied by their attempt to set up a business)? Social capital is often presented as (1) *relational social capital* which impacts entrepreneurial capacity by the quality and level of interpersonal trust people have in human connections and co-ordinations; (2) *structural social capital* which impact an individual's entrepreneurial capacity via the extent of their own personal networks and access to social resources, and (3) *cognitive social capital* which impacts entrepreneurship and economic actions through institutional trust, interpretation of norms, customs/practices, values, and beliefs. These forces which underlay cognitive social capital are moderated by the various levels of trust between people and the institutions around them (Burt, 2001; Putnam, 2001; Thai *et al.*, 2020).

Defining, measuring, and classifying appropriate measures of social capital continue to be a challenge for researchers (Saukani and Ismail, 2019). The authors conduct a principal component analysis (PCA) on a wide range of social capital indicators to identify the different dimensions of social capital at the individual level. Social capital is identified through four broad manifestations pertaining to trust in institutions and others around them, formal networking through membership groups, informal connections with friends and family and tolerance of others.

By examining the relationship between these dimensions of social capital and entrepreneurship, the paper contributes to the literature in several ways. Trust in institutions and formal networking have been found to have a positive effect on entrepreneurial behaviour (Sedeh *et al.*, 2020; Thai *et al.*, 2020). However, negative relationships between trust and entrepreneurship have also been detected (Thai *et al.*, 2020). This has led researchers to call for inquiry into the "bright and dark sides of trust" (Anderson *et al.*, 2010; Welter, 2012 p. 201). This paper incorporates a wide array of individual trust measures translating across the macro and meso institutional environment of countries and regions to interpersonal micro level relationships with friends and family, providing more evidence around the connection between broader social institutions, interpersonal relationships and trust.

Secondly, the authors extend the argument in this paper that tolerance of others as a manifestation of social cohesion and capital in the community could have important implications for entrepreneurship (Côté and Erickson, 2009; Florida and Gates, 2003; Inglehart, 1997; Kim and Aldrich, 2005). For example, tolerance of diversity can act as a moderating bridge to network building or to improved human connections and co-ordinations and could also build respect in the values, practices and beliefs held by people in the community. Consequently, entrepreneurship can be influenced by the extent of intolerance or tolerance of individuals in the operating social context limiting an entrepreneur's access to opportunities and resources (Kim and Aldrich, 2005; Laurence, 2011). Examining the impact of tolerance within the broader context of social capital extends the current literature linking tolerance and social capital to economic outcomes (Lehmann and Seitz, 2017; Naylor and Florida, 2003; Qian, 2013). It also answers the call by Qian (2013) who highlights the need for analysis of tolerance on different aspects of development.

Finally, as highlighted by Kwon *et al.* (2013) only a few empirical studies exist examining the link between social capital at the national level and entrepreneurial activity. Consequently, the analysis adds to this literature gap, by employing a multi-level model

controlling for the random effects of an individual (level 1) being nested within regions (level 2) and nested within countries (level 3). By controlling for country and regional spatial effects, and macro meso and micro measures of social capital, the paper extends further the recent work of Sedeh *et al.* (2020) who examined the relationship between national social capital and entrepreneurial intent and responds to the call by Payne *et al.* (2011) for more multilevel work on social capital and entrepreneurship. The results demonstrate that controlling for individual, regional and country nested effects, whilst examining the social capital-entrepreneurship relationship, provides a more encompassing framework of all the potential contextual factors that may be related to entrepreneurship. This supports the argument that analyses should account for social factors when explaining variations in entrepreneurship (Thai *et al.*, 2020).

In this paper, the authors firstly conduct a PCA analysis using social capital indicator data from 87,007 individual observations, from the Life in Transition Survey (LiTS) (2010 and 2016). Following this, the paper explores the relationship between deduced social capital indicators and the likelihood of an individual attempting to start a business, across 428 regions in 37 countries in Western, Central and Eastern Europe and Central Asia.

In the next section the theoretical setting for the paper is outlined. This is followed by the data and methodology section. Results are then presented in the next section. A discussion of the hypotheses is the penultimate section, and a conclusion section finalizes the paper.

2. Literature review

2.1 Contextualising entrepreneurship

Entrepreneurship has had numerous definitions (Cunningham and Lischeron, 1991). The classical school of entrepreneurship emphasized the capacity of an entrepreneur to innovate and take on the burden of risk (Hébert and Link, 1988). This understanding of entrepreneurship is rooted in the role of the entrepreneur in the coordination of the factors of production, boldness, and innovation (Deakins and Freel, 2003). As Cheng and Li (2011, p. 774) point out, firm formation is the "behavioral manifestation of entrepreneurship" and Krueger and Carsrud (1993) argue that the entrepreneurial path to firm creation is intentionally planned.

Whilst entrepreneurial action can be attributed to planned behaviour (Kolvereid and Isaksen, 2006; Ajzen, 1991; Shapero, 1984) it is becoming increasingly evident that actual business start-ups, and entrepreneurship in the broader sense, are also facilitated or impeded by a complex web of individual and contextual level factors (Bogatyreva *et al.*, 2019).

Welter (2011) argues that a contextualised view of entrepreneurship improves our understanding of the when, how, and why of entrepreneurial actions as the entrepreneurial process is socially, spatially, and institutionally bound. Economic behaviour is embedded in social relations and structures which can be advantageous or disadvantageous to economic actors (Granovetter, 1985) by generating trust and discouraging wrongdoing (Granovetter and Swedberg, 2018). Johannisson *et al.* (2002) define two types of embeddedness which can impact economic behaviour: systemic and substantive embeddedness. Systemic embeddedness is the structure of relations (or networks) that tie economic actors together and substantive embeddedness refers to content (i.e. quality) of the actual relations between actors. Principally, what is being discussed here are facets of social capital contextualised in place. Next, attention turns to a more detailed discussion on the different dimensions of social capital and how it relates to Entrepreneurial activity.

2.2 Social capital

In the context of entrepreneurial activity, social capital has three distinctive dimensions. These are referred to as structural, cognitive and relational social capital (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). Each of these dimensions are important in determining conceptually how individuals construct their social context and how they use social relationships to accrue entrepreneurial advantage in society.

Structural social capital is fundamentally the presence of roles, institutions and precedents which govern individuals into networks and the expressions of a network configuration (Uphoff and Wijayaratna, 2000). Relational social capital suggests a location and context, whereby an individual may derive advantage in generating social relationships and thus can be described as an individual's embeddedness within networks (Anderson and Jack, 2002). Relational social capital describes the relationships formed between groups of individuals through relational interaction, whereas structural social capital defines an individual's position and advantage within their networks. The "trust and trustworthiness" (Tsai and Ghoshal, 1998, p. 465) developed between individuals because of interactions within communities and networks over time is defined by their relational social capital. Cognitive social capital allows for the formation of shared norms, codes and values within a community. Common mental processes existing within and across groups of individuals leads to cooperation at a community level and a sense of common purpose (Bhandari and Yasunobu, 2009). Tsai and Ghoshal (1998, p. 465) suggest that this forms the basis of Coleman's "public good aspect of social capital". It refers to the shared vision that guides the actions of individuals which exist within large organisations or communities. This allows for individuals and groups within these organisations/communities to act in the interest of the overall collective entity. Lee and Jones (2008) illustrate that cognitive social capital is vital to the development of relational social capital as the trust between actors is allowed to develop once they share a common vision.

From a social network theory perspective understanding social capital involves actors unpacking the dimension of social networks in two ways. Bonding social capital describes a network which is composed of strong ties, support and deep relational trust. This type of social capital is described as the "glue" of society and defined by closed networks (Putnam, 2000; Burt, 2001). However, there is also bridging social capital which defines relationships composed of weak ties and thin trust. These are weak relationships which often span structural holes and define the connections between networks rather than within networks. Putnam (2000) characterises bridging social capital as the "oil" of society fostering broad norms of cooperation and trust. While the distinction between these types of social capital is important in and of itself, their relevance in this paper pertains to the importance of the distinct types of social capital and how they manifest in the realm of entrepreneurship.

2.3 Manifestations of social capital and their links to entrepreneurship

As social capital is a nebulous, intangible and a multidimensional concept; how social capital manifests and can be measured is complex. Researchers adopt the use of proxies such as trust, social cohesion, and network indicators across multi-levels, which are considered the observed and experienced manifestations of social capital, and often these indicators represent interrelated features of structural, cognitive, and relational social capital. Central to early conceptions and indicators of social capital, were the recurring themes and importance of networks and a trust of others, groups, and institutions (Bourdieu, 1986; Coleman, 1988; Helliwell and Putnam, 1995). Later, and particularly in the economic geography literature, an increasing emphasis has been placed on the importance

of tolerance and a region's ability to tolerate diversity (Florida and Gates, 2003; Inglehart, 1997). In this section, we explore these aspects of social capital and their links to entrepreneurship.

Networks are a commonly used proxy for social capital and have been considered important in the literature for firm formation and entrepreneurship (Elfring and Hulsink, 2003; Greve and Salaff, 2003; Stuart and Sorenson, 2005). Entrepreneurial activity requires a great deal of social interaction, and as a result the process of networking has been identified as necessary for the entrepreneur (Krishna and Uphoff, 2002). Entrepreneurs require skills to develop and build networks which they can use to create opportunities for their business. McKeever *et al.* (2014) argued that possessing social capital in this fashion allows entrepreneurs to develop and maintain mutuality, credibility, and legitimacy, which is crucial for orientating entrepreneurial activity. Indeed, in this case it has been argued that networking is like conventional capital, a resource, which is necessary for firm formation. Important for getting access to not only knowledge, but also for financing business operations (Seghers *et al.*, 2012), for recruiting (Chell and Baines, 2000), for discussing aspects of establishing and running a business, and for access to distribution channels (Greve and Salaff, 2003).

Trust and distrust in society which can manifest at a personal, collective or institutional level (e.g. Hohomann and Malieva, 2005; Welter, 2012; Welter and Kautonen, 2005) and which can be either general or particular (Patulny and Lind Haase Svendsen, 2007) is a commonly employed proxy of social capital. Putnam (1993, p. 4) argued that "trust lubricates social life". Trust in this sense is not just interpersonal trust but also trust in the overall social fabric, in governance structures, cooperative norms and lower transaction costs making entrepreneurs believe they can build businesses more easily (Newton, 2001; Sedeh *et al.*, 2020). Farrell and Knight (2003) developed a model for explaining social capital which suggested that interpersonal trust and institutional trust were key components of social capital. They attributed this relationship to the importance of trust in developing agreements which govern social transactions. Trust influences an individual's knowledge sharing capacity (Chiu *et al.*, 2006) and organizations with lower levels of trust are identified as having less knowledge sharing capacities (Rutten *et al.*, 2016).

Too much collective trust can also hamper cooperative behavior leading to locked-in cognitive learning effects at the regional level (Grabher, 2002; Kaminska, 2010). With the added complexity of multi-level translations of trust; substitution and complementary forms of trust can occur (Welter *et al.*, 2004). Personal trust can help entrepreneurs cope with institutional deficiencies in contexts where the regulatory and legal environment fails to provide confidence in market transactions (Welter, 2012). In such instances, entrepreneurs may need to rely on personal trust with partners for exchange giving rise to a substitution effect between institutional and personal trust (Granovetter, 1985). In more stable institutional environments, personal trust may play a more complementary role (Welter *et al.*, 2004). However, others argue that business relationships are not overly trust based and instead are a result of calculated risk where the costs and rewards of partners acting in non-trustworthy ways are assessed (Lewicki *et al.*, 1998; March and Olsen, 1989; Williamson, 1993). Similarly, at the personal level, psycho-analytical theory suggests entrepreneurs have a general disposition for distrusting the world around them, fearing becoming victims of scams and often anticipating the worst possible outcomes (de Vries, 1985). However, this type of personal trust could have positive implications for the entrepreneur, making them shrewder decision-makers (Zahra *et al.*, 2006) and more alert to market changes, business threats, activities of competitors and government policies (de Vries, 2017).

Inglehart (1997) highlighted the need for a culture of trust and tolerance for extensive networks to develop. Florida and Gates (2003) linked the process of knowledge acquisition by

entrepreneurs with societal tolerance and diversity. Entrepreneurship often requires the internalization and utilization of external knowledge for innovation (Zahra, 2015) and social tolerance facilitates knowledge spill overs benefitting such economic development (Florida *et al.*, 2008; Qian, 2013). In this instance, tolerance and openness are considered to enable social "bridging" by lowering barriers to communication between people of different backgrounds and creating more opportunities for knowledge exchange. This process benefits entrepreneurial discovery and innovation without compensating for the costs of knowledge production (Qian, 2013). Consequently, entrepreneurs benefit from increased levels of social tolerance by appropriating knowledge spill overs for their own entrepreneurial advantage. However, there is sparse literature which examines whether personal and collective social attitudes to individuals and diverse communities themselves contribute significantly to entrepreneurship at an individual level. Florida and Gates (2003) found that areas, which are more open and tolerant to different types of people and cultures, attract more creative individuals, which in turn attract and generate more innovative industries. Empirical analysis of German regions found that areas with greater cultural diversity had greater levels of entrepreneurship (Audretsch *et al.*, 2010). An analysis of UK firms between 2005 and 2007 illustrated that more diverse management in companies was linked to increased innovation, and that access to international markets and migrant status was positively associated with entrepreneurship (Nathan and Lee, 2013).

3. Data and methodology

In this section, the data and PCA analysis are presented, and the manifestations of social capital are constructed in subsection 3.1. The hypotheses and study design linking social capital to entrepreneurship based on this background literature discussion (in Section 2) are subsequently outlined in subsection 3.2.

3.1 Data background and principal component analysis

The data used stems from the second and third waves of the Life in Transition Survey (LiTS) from 2010 and 2016. In total, 90,000 individuals [1] were surveyed in LiTS II and III from 37 [2] countries (there is data for 31 countries for the second and third wave and additional data for 6 countries for one of the two waves) on their beliefs, perceptions, and attitudes to issues such as democracy, the role of the state and their prospects for the future. The questionnaire was developed in a joint collaborative project by the European Bank for Reconstruction and Development, the World Bank and Transparency International and are representative samples using multistage random probability stratified clustered sampling by geographical level and level of urbanity/rurality [3]. The LiTS surveys contain a wealth of information on household matters related to entrepreneurship, occupational status, household characteristics and social capital. The dependent variable employed originates from a question that asks respondents whether they have attempted to start their own business. This question allows the possibility that the respondent may have attempted to start a business and may no longer be involved directly in the business or that it may have failed. Consequently, it is a broad measure of entrepreneurship incorporating entrepreneurial action, success, and failure [4]. Within the sample, 13% have attempted to start a business. The descriptive statistics of the sample are described in Table 1.

The measurement of social capital requires accounting for the different components which are emphasised in the different conceptualisations of social capital (Scrivens and Smith, 2013). Principal components have been used to break down social capital into components on previous occasions. Saukani and Ismail (2019) broke social capital down into four categories

Variable	Definition	Mean	Std. Dev
Set up a business	= 1 if the respondent attempted to set up a business, 0 otherwise	0.128	0.334
Networks	Principal component for Networks	−0.093	0.105
Trust	Principal component for Trust	0.423	0.369
Tolerance	Principle component for Tolerance	0.968	0.322
Meet family and friends	Meet with friends and family regularly (daily or weekly), 0 otherwise	0.617	0.486
Never moved	= living in same area for all years of life, 0 otherwise	0.533	0.498
Urban	= 1 if in an urban location, 0 otherwise	0.587	0.492
Wave 2016	= Year 2016 observation, 0 otherwise	0.560	0.496
Unemployed	= 1 if receiving unemployment state benefit, 0 otherwise	0.055	0.228
Third Level	= = 1 if the respondent has a post-secondary education, 0 otherwise	0.377	0.484
Secondary educ	= 1 if the respondent has completed lower or upper second level education, 0 otherwise	0.496	0.499
Primary educ. (or lower)	= 1 if the respondent has a primary education, 0 otherwise	0.125	0.331
Income	Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest 10% people in our country, and on the highest step, the tenth, stand the richest 10% of people in our country. On which step of the ten is your household today?	4.488	1.698
Gender	= 1 if male, 0 otherwise	0.515	0.499
Married	= 1 if married, 0 otherwise	0.587	0.492
Atheist	= 1 if no religion, 0 otherwise	0.093	0.290
Buddhist	= 1 if Buddhist, 0 otherwise	0.020	0.143
Jewish	= 1 if Jewish, 0 otherwise	0.001	0.037
Orthodox Christian	= 1 if Orthodox Christian, 0 otherwise	0.358	0.479
Catholic	= 1 if Catholic, 0 otherwise	0.213	0.409
Other Christian	= 1 if Other Christian, 0 otherwise	0.053	0.225
Muslim	= 1 if Muslim, 0 otherwise	0.227	0.419
Other religion	= 1 if other religion, 0 otherwise	0.016	0.126
Refusal to say religion	= 1 if refused to say religion, 0 otherwise	0.014	0.012
Log: Age	Age in log form	3.78	0.396
Log: Age2	Age in log form and squared	14.455	2.945

Source(s): European Bank for Reconstruction and Development and World Bank Life in Transition Survey (2010, 2016)

Table 1. Variable descriptions and descriptive statistics of sample

using a categorical principal components approach. Onyx and Bullen (2000) used a similar method to measure social capital in communities based on a hierarchical method. Crowley and Walsh (2021) previously examined the dimensions of social capital by factor principal component analysis using a smaller sample of transition countries from LiTS III data. Aligning with these previous studies and closely following the approach of Crowley and Walsh (2021), a factor principal component analysis (going forward referred to as PCA) is carried out on a comprehensive set of 32 possible social capital indicators [5]. This included a list of questions pertaining to trusting institutions and people; membership to formal groups; and questions related to opinions on immigrants and having individuals of differing races, sexuality, and religious beliefs as neighbours. These questions are outlined in Table 2. The authors also included the variable "friends" in the preliminary analysis which could arguably be included as an indicator of informal networks and hence a valid measure of structural social capital. However, the measure of sampling adequacy for this variable was below the 0.5 acceptable threshold (Mooi *et al.*, 2018) and hence the authors included it as a stand-alone

Variable	Description	Mean	Std. Dev	Factor 1	Factor 2	Factor 3	Uniqueness
Tolerance							
Tolerance: neighbours mentioned that the respondent does not want–different race	= 1 if tolerant, 0 otherwise	0.855	0.352	−0.014	−0.0007	0.8469	0.2825
Tolerance: neighbours mentioned that the respondent does not want–immigrants/ foreign workers	= 1 if tolerant, 0 otherwise	0.797	0.402	0.0246	−0.0039	0.7945	0.3681
Tolerance: neighbours mentioned that the respondent does not want–homosexuals	= 1 if tolerant, 0 otherwise	0.489	0.499	−0.0417	0.1677	0.5827	0.6305
Tolerance: neighbours mentioned that the respondent does not want – religious beliefs	= 1 if tolerant, 0 otherwise	0.898	0.302	−0.075	0.0023	0.7889	0.3719
Tolerance: Do you think immigrants are valuable to society?	= 1 if Yes, 0 otherwise	0.222	0.415	0.1757	0.1235	0.2031	0.9126
Trust							
Trust–the presidency	= 1 if some or complete trust, 0 otherwise	0.386	0.486	0.7419	0.0101	−0.0696	0.4447
Trust–the government	= 1 if some or complete trust, 0 otherwise	0.281	0.449	0.8584	−0.0034	−0.0573	0.2599
Trust–the regional government	= 1 if some or complete trust, 0 otherwise	0.256	0.436	0.8163	0.0039	−0.0571	0.3303
Trust–the local government	= 1 if some or complete trust, 0 otherwise	0.359	0.479	0.8073	0.0196	−0.0565	0.3447
Trust–the parliament	= 1 if some or complete trust, 0 otherwise	0.235	0.424	0.8807	0.0251	−0.0377	0.2224
Trust–the courts	= 1 if some or complete trust, 0 otherwise	0.295	0.456	0.8102	0.103	0.0306	0.332
Trust–political parties	= 1 if some or complete trust, 0 otherwise	0.168	0.374	0.8511	0.0217	−0.0214	0.2747
Trust–the armed forces	= 1 if some or complete trust, 0 otherwise	0.548	0.497	0.7051	−0.0176	−0.0193	0.5021
Trust–the police	= 1 if some or complete trust, 0 otherwise	0.476	0.499	0.7307	0.0387	0.0755	0.4588
Trust–banks and the financial system	= 1 if some or complete trust, 0 otherwise	0.341	0.474	0.7041	0.0027	−0.0009	0.5043

(*continued*)

Table 2.
Variable descriptions, summary statistics and factor loadings of indicators used in social capital factor analysis

Variable	Description	Mean	Std. Dev	Factor 1	Factor 2	Factor 3	Uniqueness
Trust–foreign investors	= 1 if some or complete trust, 0 otherwise	0.223	0.416	0.7068	0.0197	0.0748	0.4945
Trust - non-governmental organizations	= 1 if some or complete trust, 0 otherwise	0.258	0.438	0.6927	0.1374	0.1443	0.4805
Trust- trade unions	= 1 if some or complete trust, 0 otherwise	0.258	0.437	0.7173	0.114	0.0562	0.4694
Trust -religious institutions	= 1 if some or complete trust, 0 otherwise	0.383	0.486	0.5807	0.0081	0.0098	0.6626
Trust–family	= 1 if some or complete trust, 0 otherwise	0.906	0.291	0.1816	−0.0039	0.0561	0.9639
Trust–neighborhood	= 1 if some or complete trust, 0 otherwise	0.702	0.457	0.3831	0.0052	0.1621	0.8269
Trust–people you meet for the first time	= 1 if some or complete trust, 0 otherwise	0.209	0.407	0.3726	0.0888	0.3081	0.7584
Trust–foreigners	= 1 if some or complete trust, 0 otherwise	0.223	0.416	0.3586	0.1469	0.4003	0.6895
Formal Networks							
Member–Church	= 1 if a member, 0 otherwise	0.063	0.243	0.0217	0.4547	−0.0053	0.7928
Member–sports and recreational organizations and associations	= 1 if a member, 0 otherwise	0.047	0.212	0.0098	0.7155	0.1625	0.4616
Member–art, music or educational organizations	= 1 if a member, 0 otherwise	0.025	0.155	0.0319	0.8034	0.1295	0.3368
Member–labour union	= 1 if a member, 0 otherwise	0.024	0.153	0.0901	0.6863	−0.0411	0.5192
Member–environmental organizations	= 1 if a member, 0 otherwise	0.007	0.086	0.0304	0.8639	0.0094	0.2527
Member–professional organizations	= 1 if a member, 0 otherwise	0.019	0.138	0.018	0.7804	0.0967	0.3813
Member–humanitarian or charitable organizations	= 1 if a member, 0 otherwise	0.018	0.136	0.0122	0.7937	0.0945	0.361
Member–youth association	= 1 if a member, 0 otherwise	0.011	0.106	0.0395	0.8157	0.0311	0.3321

Source(s): Authors estimation using European Bank for Reconstruction and Development and World Bank Life in Transition Survey (2010, 2016)

Table 2.

variable in the regression analysis but continue to associate the variable as a measurement of networks.

The social capital indicators (in Table 2) have discrete outcomes. Since the PCA method assumes the variables to be continuous with a multivariate normal distribution, following Bourke and Crowley (2015) and Laursen and Foss (2003) a polychoric transformation is implemented in the analysis. Prior to conducting the PCA analysis, a bartlett test of sphericity was conducted indicating that the variables are significantly correlated. A Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.881 indicating a meritorious adequacy of the correlations (Kaiser, 1974; Mooi *et al.*, 2018). Following an initial PCA analysis, the number of factors to retain after conducting a screeplot test is determined (Cattell, 1966) as presented in Figure A1 of the Appendix 1. The plot indicates that it is appropriate to retain three factors as there is a distinct break or "elbow" formation in the factors from four onwards (Mooi *et al.*, 2018) [6]. Table 2 outlines the results from the PCA. As can be identified the large number of variables load into three distinct factors which we will refer to broadly as (1) trust (2) formal networks and (3) tolerance. Trust as per the loading descriptions can be attributed to a collective measure of institutional, generalised and interpersonal trust, with institutional trust indicators more dominant in the factor loadings than generalised (people they meet for the first time and foreigners) and personal (family) trust indicators. The tolerance factor is more heavily loaded with tolerance towards different races, those in same sex relationships and those with different religious beliefs.

3.2 Hypotheses, study design, and the entrepreneurial production function

Following the PCA and reflecting on the theoretical insights from the literature review in Section 2, the authors expect that higher levels of personal networking and tolerance will have a positive relationship with entrepreneurship. However, trust may have either a positive or negative relationship with entrepreneurship representing the "bright and dark sides" of trust as discussed in Section 2. Although not a part of the PCA, but a valid measure of informal networks, we expect higher frequency of meeting friends and family to have a positive relationship with entrepreneurship. Consequently, the hypotheses to be examined are:

H1. Formal networking has a positive relationship with entrepreneurship.

H2. Informal Networking (friends and family) has a positive relationship with entrepreneurship.

H3. Social tolerance has a positive relationship with entrepreneurship.

H4. Trust has a positive or negative relationship with entrepreneurship.

The factor variables and friends and family indicator are then incorporated into a wider entrepreneurial production function estimated by means of a multilevel mixed effects probit model [7] with takes the following specification:

$$E^*_{ijl} = \beta_0 + \beta_1 Formal\,Networks_{ijl} + \beta_2 Friends/family_{ijl} + \beta_3 Tolerance_{ijl} + \beta_4 Trust_{ijl} + \beta_k X_{ijl} + Z_{ijl}U_{jl} + \varepsilon_{ijl} \quad (1)$$

In this specification, notation i refers to the respondent in the household, j refers to the region and l refers to the country, the respondent is located. E^* refers to the binary yes/no observation of whether the respondent attempted to set up a business. *Formal Networks*, *Tolerance and Trust* refer to the factor component measures of formal networks, tolerance,

and trust respectively. *Friends/Family* refers to the informal networking measure of meeting up with family and friends. Numerous other factors such as education (Storper and Scott, 2008; Van Der Sluis *et al.*, 2008), financial resources (Hurst and Lusardi, 2004), gender (Malach Pines *et al.*, 2010), age (Azoulay *et al.*, 2020) and religious beliefs (Dana, 2009; Henley, 2017) have also been linked with entrepreneurial activity. X represents these individual level effects and are listed in Table 1. U represents the random effects at the levels of region (428 regions) and country (37 countries). Multilevel modelling can account for the interdependence of entrepreneurial observations at different nested levels by partitioning the total variance into different components of variation which in this case would be set at the region and country level (Ballas and Tranmer, 2012; Goldstein, 2011). Thus, this model controls for unobserved effects at the level of the region or country that may be relevant for entrepreneurship.

Figure 1 illustrates the study design of the multilevel model with three levels where level 1 consists of $N = 87{,}007$ individual observations with the factor component measures of trust, formal networks, informal networks and tolerance (*Trust, Formal Networks*, *Tolerance, Friends/Family* in equation (1)) and individual characteristics of urban location, age, income, male (gender), marital status, religion, employment status and education indicators (X in equation (1)). Individuals are nested in regions which is prescribed by level 2 consisting of $N = 428$ regions [8]. Finally, regions are nested in countries which are prescribed in level 3 consisting of $N = 37$ countries.

4. Results

The results of the analysis are presented in Figure 2 and Table 3. The reported likelihood ratio test indicates that there is enough variability at region and country level to favour a multi-level probit model over an ordinary probit model. The residual intraclass correlation

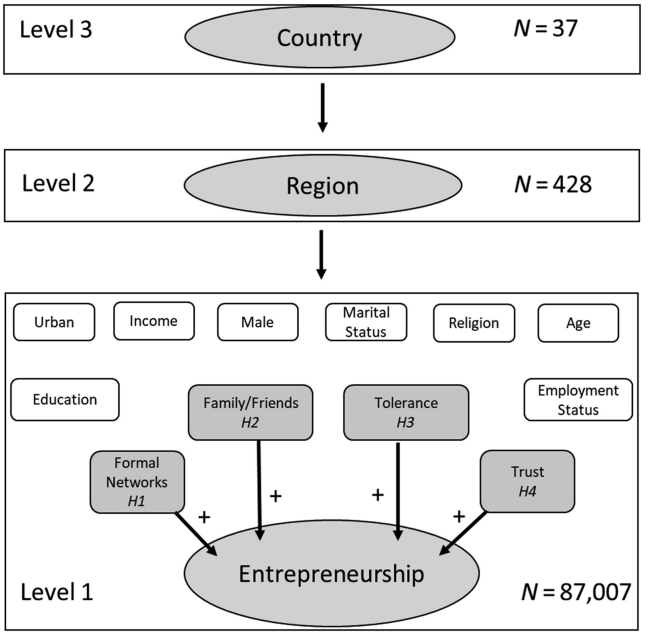

Figure 1.
Study design of the multi-level model

Variables	Multi-level model
Networks	0.096***
	(0.010)
Trust	−0.018***
	(0.003)
Tolerance	0.011***
	(0.003)
Meet friends and family	0.007***
	(0.002)
Never moved	−0.018***
	(0.002)
Urban	0.005*
	(0.002)
Wave2016	−0.002
	(0.002)
Unemployment	0.006
	(0.005)
Third Level	0.081***
	(0.005)
Secondary	0.056***
	(0.005)
Income	0.006***
	(0.001)
Male	0.054***
	(0.003)
Married	0.011***
	(0.002)
Buddhist	0.027***
	(0.011)
Jewish	−0.027
	(0.030)
Orthodox Christian	−0.023***
	(0.005)
Catholic	−0.015***
	(0.005)
Other Christian	0.007
	(0.006)
Muslim	−0.031***
	(0.007)
Other religion	0.025***
	(0.009)
Refused to say religion	−0.019*
	(0.010)
Log age	1.826***
	(0.081)
Log age2	−0.245***
	(0.011)
Constant	−19.02***
	(0.010)
Observations	87,007
Number of groups	428 regions/37 countries
Log Likelihood	−31214.081

Note(s): (1). Standard errors in parentheses, ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
(2). Marginal effects are reported
(3). Reference categories are primary educ. (or lower) and atheist
(4). LR test vs probit model: $\chi^2(2) = 775.11$ Prob > $\chi^2 = 0.0000$

Table 3.
Results of regressions

following estimation of the multi-level model is presented in Table 4. Seven per cent of the proportion of the variation of entrepreneurship is attributable to the country and regional level, with the latter making a larger contribution. It is necessary to note that some of the variables included in the model such as the social capital indicators are also inherently spatial/contextual in nature.

The impact of an individual's level of formal and informal networks have a positive relationship with entrepreneurship, meaning hypotheses H1 and H2 can be accepted. Similarly, an individual's personal tolerance has a positive relationship with entrepreneurship meaning H2 is also accepted. These results contrast with the negative relationship between personal trust in institutions and entrepreneurial activity highlighting that trust may have a dark relationship with entrepreneurship as depicted in H4 (see Figure 2).

It is necessary to note that the size of the marginal effects of the social capital components cannot be interpreted as they are latent variables of a host of underlying components. To get an indicative sense of the size of the coefficients, the marginal effects of the underlying components and entrepreneurship are reported in Appendix 3-Table A3. If the coefficients sizes are considered, many of the independent variables show economic significance, particularly for the networking variables, with relatively high marginal effects. However, these need to be reviewed with caution as (1) the binary and independent nature of these variables mean the structure, spectrum and culminating nature of the social

Table 4.
Residual intraclass correlation

Level	ICC	Std. Err	[95% conf. Interval]	
Country	0.021	0.006	0.012	0.037
Region/Country	0.051	0.007	0.039	0.068

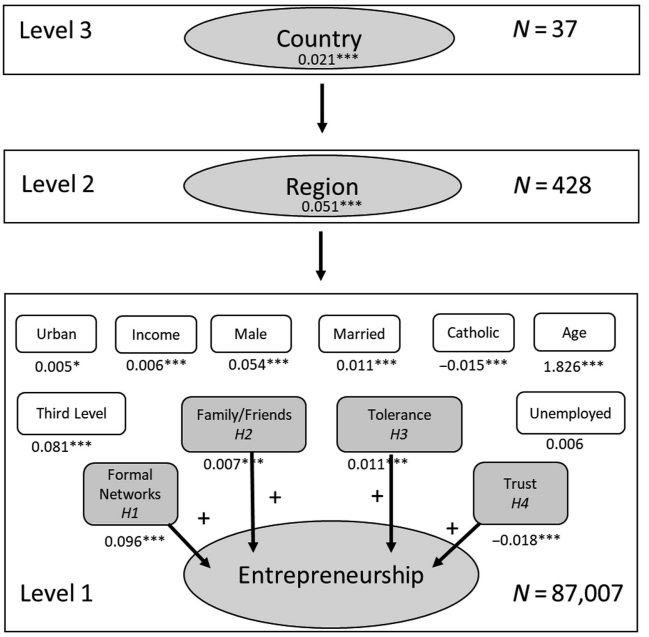

Figure 2.
Results of the multi-level model

capital composition is lost and so the aggregated relationship could be much larger, although this is purely speculative and (2) it is likely these coefficients are biased due to the high intercorrelated nature of the variables, following the KMO test as outlined earlier. Overall, taking these concerns into account, the marginal effects of variables such as age, education and gender appear that they may be larger in importance than social capital factors. However, it is also apparent that considering all the spatial dynamics in their totality (country, region, time at place and social capital effects) indicates that contextual factors both related and unrelated to social capital are significant features related to entrepreneurship.

Robustness models of equation (1) were also conducted to account for some regional boundary definition and regional name differences between the 2010 and 2016 data series and (2) for potential sensitivity that may occur if alternative definitions of the dependent variable were used. The results remain largely robust to these concerns and the results of these sensitivity checks are presented in Appendix 2 and Table A1 (robustness tests of data sample) and Table A2 (robustness tests of dependent variable definition) for interested readers.

5. Discussion

5.1 Discussion of the hypotheses

The positive relationship between networks, tolerance and entrepreneurship is consistent with previous literature (Florida *et al.*, 2010; Turkina and Thi Thanh Thai, 2013). The findings indicate that structural social capital and cognitive social capital around networking, social bridging and the norms of tolerance and values are important for entrepreneurs, possibly for socialising, for learning, and to assemble and share knowledge, ideas, skilled labour and capital, which are critical resources required when establishing and developing a business (Lefebvre *et al.*, 2015; Stuart and Sorenson, 2005). This reinforces the theory posited by Shapero and Sokol (1982) suggesting that entrepreneurs should consider themselves in their broader social environment rather than simply view themselves as individuals. Ulhøi (2005) in a study on the role of the entrepreneur in society, suggested that entrepreneurs should reassess the value of networks to their development. The findings in this paper coupled with the findings from the literature suggest that structural social capital plays a role in determining an individual's access to opportunities, which in turn affects their ability to establish and run a business successfully.

Social tolerance is also related to a higher incidence of entrepreneurship. Increased individual tolerance may assist in lowering barriers to communication, which in turn expand and enable entrepreneurial opportunities to be appropriated, particularly from knowledge spillovers emerging from people of different backgrounds (Qian, 2013). Greater social tolerance may also facilitate the development of relational social capital and structural social capital for an entrepreneur leading to greater opportunities. The findings of this analysis align with literature that previously highlighted a positive link between openness and tolerance in social values and innovative activity (Audretsch *et al.*, 2018, p. 201; Lehmann and Seitz, 2017; Qian, 2013).

The negative relationship between trust and entrepreneurial activity signals a potential dark side in the trust-entrepreneurship nexus. Unpacking the reasons behind the sign of the coefficient is complicated considering the makeup of the factor constitutes institutional, generalised, and personal measures of trust. However, it is more heavily loaded with highly correlated institutional indicators. Several competing explanations can be suggested. Firstly, entrepreneurs may be generally predisposed to distrust (de Vries, 1985). For de Vries (2017), this is connected to their need for control which manifests into behaviours of suspicion of others and the world around them, with a strong fear of being victimized or taken advantage of.

This causes problems for the entrepreneur in relationship building and in developing mutual trust.

However, a potential bright side of this pattern is that a psychological distrusting state enables the entrepreneur to anticipate the negative actions of others, making them alert to market changes, the actions of competitors, suppliers, and government changes (de Vries, 2017). Indeed, others argue that over trusting behaviours can erect barriers to creativity and innovation, leading to cognitive lock-in, misplaced overconfidence and errors of business judgement (Nooteboom, 2002; Zahra *et al.*, 2006).

Another potential explanation for the negative relationship is that individuals marginalised from society may distrust institutions and if they are having difficulties to find a job, they may consequently decide to start a business. Alternatively, distrust in institutions may push entrepreneurs to set up a business and rely on interpersonal trust to cope with institutional deficiencies (Welter, 2012). It may also signal entrepreneurs as key disruptors for change in their society. In line with the theory proposed by Welter and Smallbone (2011) entrepreneurs can be used as agents to engineer institutional change to renew institutions and find ways of improving them. Therefore, while this indicates that entrepreneurs may be more likely to reject governing institutions, they may also provide an insight or a method by way of assuming a role of change agency to improve upon those institutions (North, 2012; Oliver, 1991). That said, whilst individuals can initiate change in a context, the same context determines individual behaviour by providing "the rules of the game" shaping how individuals act and compete (Tonoyan *et al.*, 2010). Critically, the quality of the institutional context has a major impact on reducing (or increasing) uncertainty and transactions costs for economic transactions (North, 1984). Distrust can restrict business development if entrepreneurs become over dependent on old and trusted networks and locked into uncreative business trajectories (Welter, 2012).

6. Conclusions

This paper sets out with the objective of using a multi-level framework to examine whether personal social capital endowments are related to entrepreneurship. By doing so, the paper makes several contributions to the literature. Interesting results are presented on the negative impact of trust for entrepreneurship expanding the empirical findings that find a potentially complicated relationship between "bright and dark" concerns. On the one hand the negative sign could be related to personality states of general distrust that benefit the alertness of entrepreneurs to business changes and opportunities. On the other hand, it could signal institutional deficiencies in the market environment that are creating increased societal marginalisation and forced change agency, but ultimately such deficiencies could lead to long term negative growth outcomes.

This paper also incorporates a less studied aspect of social capital by including tolerance into the model capturing important aspects of social cohesion and social bridging and its potential influence on entrepreneurship. The grounding of the link between tolerance and innovation in the literature, coupled with this papers results on entrepreneurship, imply that policies which increase tolerance among the general population may be fruitful for social cohesion, but may also have a benefit in developing entrepreneurs who are more tolerant of new ideas, as well as people, enhancing long run business development.

The paper extends the burgeoning although limited (Kwon *et al.*, 2013; Sedeh *et al.*, 2020) papers that examine the multi-level aspects of social capital on entrepreneurship to examine the importance of social capital within the context of different countries and regions. The novelty of this analysis lies in the fact that it controls for regional variation in the effect of social capital, as well as national variation which implies a more granular analysis. The results signal the need for future studies to control for these effects as the entrepreneurial

process is not just socially and institutionally constrained, but also spatially bound (Audretsch *et al.*, 2012; Feldman, 2001; Feldman and Francis, 2003; Welter, 2011). Spatial effects can also be transmitted through the individual social capital indicators controlled for in this work and through the "never moved" variable where individuals living in the same area all their life are less likely to be associated with entrepreneurship. This latter finding goes against previous theories and empirical evidence in the entrepreneurship literature where life-long residents are more likely to be entrepreneurs due to their opportunities to take advantage of dense social networks for knowledge and resources (Greene *et al.*, 2008; Michelacci and Silva, 2007).

6.1 Implications

Adopting a social capital lens and examining the relationship between different dimensions of social capital and entrepreneurship provide meaningful policy and practical implications. Firstly, at a practical level, entrepreneurs can assess their own personal social capital attributes. How tolerant are they? How connected to others are they? And how trusting are they? From this study, it is clear there is a relationship between these dimensions of social capital and entrepreneurship which may impede or enhance processes of new venture creation and business success (Sedeh *et al.*, 2020).

For governments at national and regional level, implementing policies that promote tolerance for others and of diversity are likely to enhance entrepreneurial outcomes, and in turn promote long run economic development. The positive link between tolerance and entrepreneurship suggests that government interventions through new policy approaches that harness increased tolerance in society are worth significant consideration. What form these interventions should take is not necessarily straightforward. Florida (2006) previously suggested that communities need to be open to diversity by creating a better people climate, which can attract diversity to communities. This can be done through investment in appropriate amenities and community institutions that foster tolerance, trust, and successful diversity in a community. For example, policymakers at the regional level can focus on improving networking ecosystems and encourage membership in community organisations and, further, the European Commission emphasise the importance of educational institutions in promoting diversity as early as pre-school level. These are some of the options policymakers can consider.

6.2 Limitations and avenues for future research

This analysis benefits from a large sample size which spans several countries and two series of data. Furthermore, there is a wide array of individual and contextual control variables included in the analysis which strengthens the empirical framework. However, it is not without its limitations. Firstly, a limitation of this study is the cross-sectional and pooled nature of the data. Despite this problem being common with these type of studies in this area, it still constrains the identification of causal relationships between social capital and entrepreneurship. Consequently, any policy action around the social-capital- entrepreneurial nexus needs to heed this concern. An estimation of the dynamic relationship between social capital and entrepreneurship using panel data would be a fruitful avenue for future research.

The empirical modelling approach presented here adds a geographical and multilevel dimension answering calls from researchers for the need to take account of contextual effects, as well as compositional effects (Payne *et al.*, 2011). Whilst it is apparent individual factors explain significant levels of the variation in entrepreneurship, it is clear the regional and country context also matters, highlighting the importance of controlling for unobserved non-random behavioural cluster patterns in regions. A key question is what are the sources of these unobserved significant effects? Unfortunately, it is difficult to tell with this dataset and

observed regional and country differences could accrue to several different phenomena such as local institutional differences, regional entrepreneurial regimes, local educational and policy support, levels of local corruption and so forth. Nevertheless, identifying the sources of this variation could prove to be a fruitful research avenue.

Notes

1. After missing variable data was controlled for, 87,007 observations were available for the analysis.
2. Albania, Armenia, Azerbaija, Belarus, Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Germany, Hungary, Italy, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Turkey, Ukraine are available in both waves. Cyprus, France, Great Britain, Greece, Sweden and Uzbekistan are available in one of the two waves.
3. For more on this see technical reports on data collection at https://www.ebrd.com/what-we-do/economic-research-and-data/data/lits.html
4. A sensitivity analysis is conducted that decomposes the principal dependent variable into two further entrepreneurial dependent variable categories for comparison purposes, where one variable represents entrepreneurial success and the other represents entrepreneurial failure. The results are largely robust across these models. Interested readers can find this analysis in Table A2.
5. STATA factor, pcf command was used.
6. These three factors explain 51 per cent of the overall variance.
7. The conditional distribution of the binary response given the random effects is assumed to be Bernoulli. The success probability is determined by the standard normal cumulative distribution function. For more on this see meprobit for STATA package in https://www.stata.com/manuals13/memeprobit.pdf
8. The number of regions was too large to list for information purposes. A complete list of the regions in LITS II and III can be obtained from European Bank for Reconstruction and Development website at https://www.ebrd.com/what-we-do/economic-research-and-data/data/lits.html

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Appendix 1

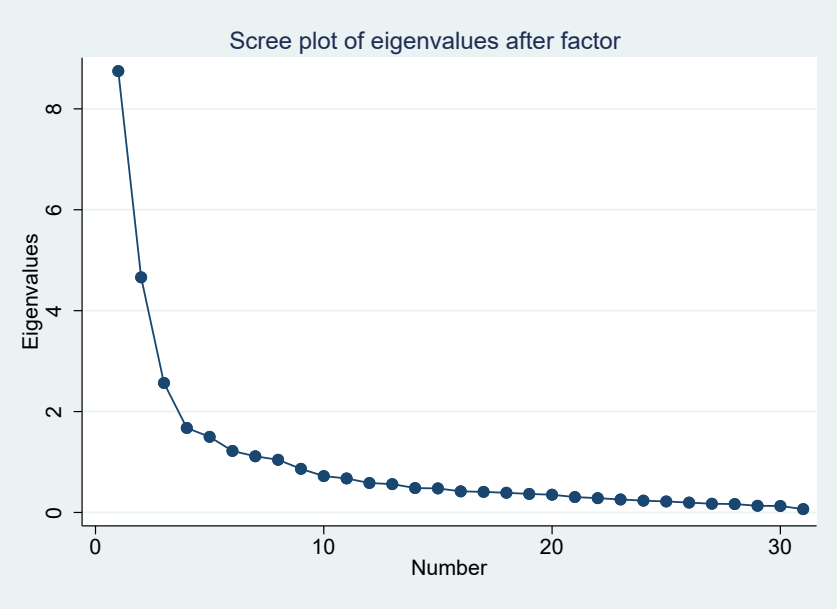

Figure A1.
Screeplot

Appendix 2
Robustness models

Robustness models were conducted to account for some regional boundary definition and regional name differences between the 2010 and 2016 data series and for potential sensitivity if alternative definitions of the dependent variable were used. These results are presented in this section.

First, the focus is on the regional boundary and regional names disparities between the two data time points. For example, in 2016 Croatia only had two regions–Adriatic Croatia and Continental Croatia. Whereas in the 2010 data there were six regions for Croatia–Dalmatia, Istra and Primorje, Lika and Banovina, Northern Croatia, Slavonia, Zagreb and surroundings. Similar patterns that occurred in Croatia, also occurred in nine other countries. However, it is straightforward to identify what regions should be pooled together within each country. Overall, there were 365 regions and 33 countries available for the 2016 data and 505 regions and 35 countries available for the 2010 data. For the main analysis, regions and countries are pooled resulting in 428 distinct regions and 37 distinct countries. It should also be noted that there were no regional level units available for France and Sweden and there were five countries (France, Sweden, Great Britain, Cyprus, Greece) that only occurred once across the two data time points. Finally, the observations for 2016 Uzbekistan data were excluded due to missing data for some social capital indicators on networking.

As a result of these data concerns, several robustness checks of Eq. (1) in main paper were conducted. Firstly, the analysis was conducted un-pooled and separately for the two data year points with no changes to regional configurations. The results for the 2016 data are represented in column (1) of Table A1. In the same table the results for 2010 are presented in column (2). Column (3) presents results without France and Sweden as they do not contain regional units to partition the data. And lastly, we exclude all the single country observations in column (4) of Table A1. As can be identified, the results are consistent and robust across all these estimations. The only exception is the friends and family variable in the 2016 data (column 1). Consequently, it is concluded that the results estimated in equation (1) of the main paper with the pooled data are reliable and robust.

Further robustness checks were conducted for differences in the dependent variable definition. The dependent variable in the main analysis includes entrepreneurs that attempted to set up a business and are in operation and entrepreneurs that attempted to set up a business and failed. It is possible to separate these two possible outcomes and conduct a sensitivity analysis to identify if the results changed if different definitions were used. 7.32% of the sample attempted a business and are currently in operation and 5.55% of the sample attempted to set up a business but failed. The results of the robustness analysis are presented in Table A2. It can be identified that the results for entrepreneurs that achieved success in terms of sign and significance are the same as that presented in the main analysis. For entrepreneurs that failed, there are some differences, to that of the main analysis. Networks and trust are robust, but the tolerance and friends/family indicators lose significance. All the other results are broadly the same except for income, unemployment and rural location pointing to the interdependent relationship that may be present between entrepreneurial failure, lower income individuals, and having an unemployment status.

Variables	(1) 2016 Only	(2) 2010 Only	(3) Without France and Sweden	(4) Without France, Sweden, UK, Cyprus, Greece and Uzbekistan
Networks	0.469***	0.441***	0.539***	0.513***
	(0.0701)	(0.0761)	(0.0531)	(0.0561)
Trust	−0.104***	−0.0811***	−0.0969***	−0.0950***
	(0.0232)	(0.0265)	(0.0173)	(0.0177)
Tolerance	0.0442*	0.0887***	0.0578***	0.0613***
	(0.0258)	(0.0303)	(0.0193)	(0.0199)
Meet Friends and Family	0.0262	0.0444**	0.0338***	0.0352***
	(0.0162)	(0.0194)	(0.0124)	(0.0127)
Never moved	−0.0611***	−0.0967***	−0.0911***	−0.0960***
	(0.0169)	(0.0187)	(0.0123)	(0.0127)
Urban	0.0347*	0.00335	0.0238*	0.0305**
	(0.0181)	(0.0200)	(0.0131)	(0.0135)
Wave 2016	N/A	N/A	−0.0106	−0.0127
	N/A	N/A	(0.0128)	(0.0129)
Unemployment	−0.0675*	0.0959***	0.0227	0.0324
	(0.0373)	(0.0332)	(0.0251)	(0.0261)
Secondary	0.233***	0.347***	0.292***	0.330***
	(0.0314)	(0.0337)	(0.0232)	(0.0249)
Postsecondary	0.347***	0.481***	0.419***	0.464***
	(0.0334)	(0.0355)	(0.0245)	(0.0261)
Income	0.0354***	0.0307***	0.0293***	0.0276***
	(0.00498)	(0.00556)	(0.00369)	(0.00383)
Gender	0.351***	0.149***	0.273***	0.259***
	(0.0157)	(0.0194)	(0.0121)	(0.0126)
Married	0.0636***	0.0724***	0.0515***	0.0436***
	(0.0174)	(0.0197)	(0.0130)	(0.0135)
Buddhist	0.125*	0.187**	0.131**	0.143***
	(0.0704)	(0.0833)	(0.0539)	(0.0543)
Jewish	−0.146	−0.149	−0.140	−0.175
	(0.215)	(0.223)	(0.158)	(0.167)
Orthodox Christian	−0.158***	−0.0491	−0.115***	−0.116***
	(0.0365)	(0.0400)	(0.0275)	(0.0284)
Catholic	−0.0870**	−0.0606	−0.0811***	−0.0682**
	(0.0357)	(0.0375)	(0.0268)	(0.0274)

Table A1.
Robustness tests of data sample

(*continued*)

Variables	(1) 2016 Only	(2) 2010 Only	(3) Without France and Sweden	(4) Without France, Sweden, UK, Cyprus, Greece and Uzbekistan
Other Christian	0.0526	0.00816	0.0454	0.0840**
	(0.0462)	(0.0435)	(0.0333)	(0.0359)
Muslim	−0.206***	−0.114**	−0.156***	−0.142***
	(0.0453)	(0.0479)	(0.0337)	(0.0342)
Other Religion	0.0771	0.164**	0.112**	0.117**
	(0.0601)	(0.0666)	(0.0454)	(0.0471)
Refusal Religion	−0.0482	−0.133*	−0.0974*	−0.0921*
	(0.0750)	(0.0708)	(0.0516)	(0.0522)
Log Age	9.554***	9.145***	9.360***	9.613***
	(0.446)	(0.462)	(0.320)	(0.332)
Log Age2	−1.277***	−1.236***	−1.259***	−1.299***
	(0.0597)	(0.0625)	(0.0431)	(0.0448)
var(_cons[countrytotal])	0.0402***	0.0201***	0.0220***	0.0182***
	(0.0121)	(0.00687)	(0.00669)	(0.00600)
var(_cons	0.0466***	0.0489***	0.0317***	0.0312***
[countrytotal > regionnew])	(0.00665)	(0.00722)	(0.00433)	(0.00444)
Constant	−19.38***	−18.48***	−18.88***	−19.32***
	(0.827)	(0.845)	(0.589)	(0.610)
Observations	48,793	38,214	85,114	80,667
Number of groups	365 regions/33 countries	505 regions/35 countries	427 regions/35 countries	401 regions/32 countries
Log-likelihood	−16882.231	−14137.679	−30167.727	−28206.675

Note(s): (1). Standard errors in parentheses, ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
(2). Marginal effects are not reported
(3). Reference categories are primary educ. (or lower) and atheist
(4). LR test vs probit model: Prob > χ^2 for all models = 0.0000
(5). N/A refers to Not Applicable

Table A1.

Variables	(1) Attempted	(2) Success	(3) Fail
Networks	0.483***	0.415***	0.342***
	(0.0509)	(0.0580)	(0.0664)
Trust	−0.0918***	−0.0555***	−0.107***
	(0.0171)	(0.0202)	(0.0222)
Tolerance	0.0548***	0.0914***	−0.00631
	(0.0192)	(0.0232)	(0.0241)
Meet Friends and Family	0.0350***	0.0473***	0.0138
	(0.0122)	(0.0147)	(0.0155)
Never moved	−0.0900***	−0.0527***	−0.104***
	(0.0122)	(0.0146)	(0.0156)
Urban	0.0238*	−0.0310**	0.0802***
	(0.0130)	(0.0153)	(0.0167)
Wave 2016	−0.0114	−0.213***	0.233***
	(0.0128)	(0.0151)	(0.0167)
Unemployment	0.0314	−0.135***	0.198***
	(0.0244)	(0.0313)	(0.0290)

(*continued*)

Table A2. Robustness tests of dependent variable definition

Variables	(1) Attempted	(2) Success	(3) Fail
Secondary	0.284***	0.284***	0.202***
	(0.0226)	(0.0276)	(0.0295)
Postsecondary	0.409***	0.398***	0.302***
	(0.0238)	(0.0289)	(0.0310)
Income	0.0283***	0.0683***	−0.0307***
	(0.00363)	(0.00435)	(0.00469)
Gender	0.270***	0.221***	0.232***
	(0.0120)	(0.0144)	(0.0153)
Married	0.0531***	0.0471***	0.0398**
	(0.0128)	(0.0153)	(0.0164)
Buddhist	0.136**	0.146**	0.0717
	(0.0535)	(0.0641)	(0.0620)
Jewish	−0.137	−0.165	−0.0658
	(0.154)	(0.190)	(0.193)
Orthodox Christian	−0.114***	−0.116***	−0.0741**
	(0.0269)	(0.0322)	(0.0339)
Catholic	−0.0733***	−0.0695**	−0.0491
	(0.0257)	(0.0295)	(0.0341)
Other Christian	0.0352	0.0488	−0.00955
	(0.0314)	(0.0359)	(0.0429)
Muslim	−0.157***	−0.166***	−0.0886**
	(0.0331)	(0.0389)	(0.0420)
Other Religion	0.125***	0.0961*	0.116**
	(0.0442)	(0.0518)	(0.0560)
Refusal Religion	−0.0971*	−0.0863	−0.0795
	(0.0508)	(0.0590)	(0.0679)
Log Age	9.211***	9.721***	5.743***
	(0.315)	(0.391)	(0.399)
Log Age2	−1.237***	−1.306***	−0.772***
	(0.0424)	(0.0525)	(0.0536)
var(_cons[countrytotal])	0.0217***	0.0268***	0.0367***
	(0.00654)	(0.00778)	(0.0106)
var(_cons	0.0314***	0.0328***	0.0269***
[countrytotal > regionnew])	(0.00428)	(0.00483)	(0.00459)
Constant	−18.62***	−19.98***	−12.48***
	(0.581)	(0.721)	(0.734)
Observations	87,007	87,007	87,007
Number of groups	428 regions/37 countries	428 regions/37 countries	428 regions/37 countries
Log-likelihood	−31214.081	−20969.942	−17553.717

Note(s): (1). Standard errors in parentheses, ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
(2). Marginal effects are not reported
(3). Reference categories are primary educ. (or lower) and atheist
(4). LR test vs probit model: Prob > χ^2 for all models = 0.0000

Table A2.

Appendix 3

Marginal effects sensitivity check

Variables	Multi-level model
Tolerance: Do you think immigrants are a burden on society?	0.013*** (0.003)
Tolerance: neighbors mentioned that the respondent does not want–different race	0.006 (0.004)
Tolerance: neighbors mentioned that the respondent does not want–immigrants/ foreign workers	−0.008*** (0.003)
Tolerance: neighbors mentioned that the respondent does not want–homosexuals	−0.002 (0.003)
Tolerance: neighbors mentioned that the respondent does not want–different religious beliefs	−0.004 (0.004)
Trust–the presidency	0.004 (0.003)
Trust–the government	−0.004 (0.004)
Trust–the regional government	−0.009** (0.004)
Trust–the local government	0.002 (0.003)
Trust–the parliament	−0.002 (0.004)
Trust–the courts	−0.004 (0.003)
Trust–political parties	−0.006 (0.004)
Trust–the armed forces	0.003 (0.003)
Trust–the police	−0.013*** (0.003)
Trust–banks and the financial system	−0.000 (0.003)
Trust–foreign investors	0.023 (0.003)
Trust - non-governmental organizations	0.006* (0.003)
Trust- trade unions	−0.024*** (0.003)
Trust -religious institutions	−0.006*** (0.003)
Trust–family	−0.001 (0.004)
Trust–neighbourhood	−0.010*** (0.003)
Trust–people you meet for the first time	0.001 (0.003)
Trust–foreigners	0.015*** (0.003)
Member–Church	0.009* (0.005)
Member–sports and recreational organizations and associations	0.015*** (0.005)
Member–art, music or educational organizations	0.008 (0.006)
Member–labour union	−0.025*** (0.007)
Member–environmental organizations	0.017 (0.011)
Member–professional organizations	0.056*** (0.007)
Member–humanitarian or charitable organizations	0.035*** (0.008)
Member–youth association	−0.003 (0.010)
Number of groups	428 regions/37 countries
Log-likelihood	−28206.675

Note(s): (1). Standard errors in parentheses, ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
(2). Marginal effects are reported
(3). Same control variables as in Eq. (1), but they are not reported
(4). LR test vs probit model: $\chi^2(2) = 748.95$ Prob > $\chi^2 = 0.0000$

Table A3. Table of marginal effects of all social capital indicators

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