

# **Does entrepreneurship matter for inclusive growth? The role of social progress orientation**

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**Abstract:** Building upon institutional economics, we examine how social progress orientation (SPO) affects inclusive growth through innovative and opportunity entrepreneurship. Hypotheses about civic activism, voluntary spirit, and the inclusion of minorities as proxies of SPO that affect entrepreneurship directly and inclusive growth indirectly have been suggested. Using unbalanced panel data of 132 observations (63 countries) and the three-stage least squares method (3SLS), we provide empirical evidence that these three measures of SPO significantly affect innovative and opportunity entrepreneurship. Interestingly, our endogenous measures of entrepreneurial activity have served to explain inclusive growth, which is observed through poverty reduction across countries. Public policies should focus on social values oriented to progress in order to stimulate valuable entrepreneurial activity and hence facilitate economic development that also embraces vulnerable communities.

## **1. Introduction**

Due to the current importance of entrepreneurship for society, many scholars have raised a debate as to whether entrepreneurial activity should be encouraged no matter the type (Acs et al. 2016; Welter et al. 2017). Some scholars have suggested that productive entrepreneurship should be made central to public strategies due to its long-term effects on job creation and development (Arshed, Carter, and Mason 2014; Shane 2009). In contrast, other scholars advocate heterogeneity in entrepreneurship, as this can provide a broader perspective of the phenomenon, which is useful for theory, practice, and policy (Welter et al. 2017). Indeed, McMullen (2011) and Urbano, Aparicio, and Audretsch (2019a) suggest that real development and inclusion may be achieved through

entrepreneurship, which is shaped by the context in which an entrepreneur makes decisions.

Bruton, Ahlstrom, and Si (2015), Bruton, Ketchen, and Ireland (2013), McMullen (2011), Suddaby, Burton, and Walsh (2018), and Sutter, Bruto, and Chen (2019) all argue that inclusive outcomes can be accomplished if institutions are aligned to the type of entrepreneurial activity performed within each country. These authors depart from the fact that extreme poverty exists across countries, so they raise a question regarding whether entrepreneurship acts as a mechanism that can foster economic growth and reduce poverty. Although there is an open debate on whether or not higher growth reduces poverty (cf. Ravallion 2001; Ravallion and Chen 2003), Anand, Mishra, and Peiris (2013, 1) define inclusive growth as "... the pace and distribution of economic growth. For growth to be sustainable and effective in reducing poverty, it needs to be inclusive..." These authors suggest analyses on these two variables have been conducted in isolation, thus understanding of inclusive growth has been limited (Anand et al. 2013). Nuanced approaches have brought together poverty and economic performance to understand pro-poor growth (Ravallion and Chen 2003), although more evidence is needed to comprehend its determinants (Anand et al. 2013; Ravallion 2001).

Si et al. (2020, 2) comment that "... researchers have started to examine economic growth and its link to poverty reduction through entrepreneurship and the development of new technology and new techniques..." In this sense, McMullen (2011) discusses inclusive growth as a process in which appropriate institutions exist to promote entrepreneurial activity with social purposes. A reduction of institutional barriers may enable this type of entrepreneurship to both increase productivity and reduce the poverty level (Gates 2008; McMullen 2011). For instance, Bruton, Ireland, and Ketchen (2012), De Castro, Khavul, and Bruton (2014), and Webb et al. (2013) suggest that the emergence of entrepreneurship in many developing countries might act as an alternative mechanism to reducing poverty and creating inclusive processes.

Although this may occur, there remains a lacuna regarding whether institutional disparities explain uneven outcomes across regions and countries (Verwimp and Muñoz-Mora 2018) through different types of entrepreneurship (García-Rodríguez et al. 2019a). In this regard, North (2005) suggests that intentionality toward progress explains the development differences between developed and developing economies. North (2005) defines advanced economies as those with well-defined institutions aimed at achieving

social progress, whereas limited societies are those characterized by weak institutional settings that deter inclusive processes. In this respect, there might be a sequence running from fundamental determinants (i.e., intentions, which are institutions), proximate determinants (e.g., entrepreneurship), and economic growth and development (North and Thomas 1973). Similar ideas have been posited to underline the importance of institutions for entrepreneurship, which in turn affect economic outcomes (Baumol and Strom 2007; Bjørnskov and Foss 2016). Hence, institutional economics has been deemed a promising and useful framework for the study of entrepreneurship (Acs, Desai, and Hessels 2008; Bosma et al. 2018; Bruton, Ahlstrom, and Li 2010).

Aside from facilitating greater understanding of those contexts conducive to entrepreneurship, institutional economics enables a distinction between formal and informal institutions, which may affect entrepreneurial activity in different ways (Thornton, Ribeiro-Soriano, and Urbano 2011). For example, North (1990, 2005) defines formal institutions as sets of written laws and regulations, whereas informal institutions are understood as values, beliefs, and so on. In light of this approach, we use the concept of social progress orientation (SPO), which is a value beyond economic terms that promotes social welfare and represents the intentionality of a society (Urbano, Aparicio, and Querol 2016). Societies oriented toward social progress may provide an adequate climate for the deployment of an individual's full potential. In this sense, we could consider SPO as an informal institution (Stephan and Uhlaner 2010; Urbano et al. 2016). Certainly, Stephan and Uhlaner (2010) note that a socially supportive culture – in contrast to a performance-based society – encourages independence-based entrepreneurship, which Reynolds et al. (2005) associate with entrepreneurial activity driven by opportunity (TEA OPP). Others such as Naudé, Amorós, and Cristi (2013, 2014) and Urbano et al. (2016) find that subjective well-being and life satisfaction promote entrepreneurship driven by innovation (TEA INNO) and opportunity, which may in turn positively affect the economic development level (Carlsson et al. 2013).

Although institutions have generally been associated with economic development (Acemoglu and Robinson 2012; North 1990), since the early 2000s some scholars have suggested that institutions condition endogenous factors instead of impacting directly on the development and inclusive process (Acemoglu, Gallego, and Robinson 2014; Rodrik 2003). In this sense, entrepreneurial activity may be one such endogenous factor influencing economic outcomes (Ács, Autio, and Szerb 2014; Audretsch, Bönte, and

Keilbach 2008), which affect vulnerable communities (Bruton et al. 2013; McMullen 2011; Si et al. 2015). Nevertheless, previous literature has examined both streams separately, and so it is necessary to empirically assess whether such a sequence running from institutions, entrepreneurship and socioeconomic development takes place across countries (Aparicio, Urbano, and Audretsch 2016a; Block, Fisch, and van Praag 2017; Bruton et al. 2013; van Praag and Versloot 2007).

Thus, we endeavor to examine how SPO affects inclusive growth through innovative and opportunity entrepreneurship. Owing to interaction and interdependence between SPO, TEA INNO, and OPP, as well as inclusive processes, a unidirectional model would lead to biased results. In order to avoid this potential issue, we simultaneously assess the influence of SPO directly on entrepreneurial activity, and indirectly on inclusive growth. The value of this approach is not only in correcting statistical bias. By explicitly incorporating innovative and opportunity entrepreneurship in a second equation, we are able to analyze how policy could actually influence economic development by generating more entrepreneurial activity based on innovation and opportunity recognition. With this three-equation approach, we implicitly link the two disparate bodies of literature presented above, and provide evidence on how entrepreneurship might reduce the poverty level by generating economic growth.

Through estimating these three equations through a three-stage least-square (3SLS) method (Zellner and Theil 1962), coupled with unbalanced panel data with information for 2002, 2006 and 2011 from the Global Entrepreneurship Monitor (GEM) and World Development Indicators (WDI) and information for 2000, 2005 and 2010 from the Indices of Social Development (ISD), we provide empirical evidence regarding the influence of civic activism, voluntary spirit and interpersonal safety and trust as a measure of SPO on entrepreneurship driven by innovation and opportunity, and the influence of these variables on inclusive growth. By introducing the concept of SPO and examining its effect on TEA INNO and OPP, and subsequently on economic growth and poverty, these findings advance the application of the institutional approach to the study of determinants of entrepreneurship driven by innovation and opportunity as well as economic development in an integrative manner. In addition, this research combines the traditional economic growth perspective with social progress and inclusion (Engelbrecht 2014; Porter 2013; Stiglitz, Sen, and Fitoussi 2009), in which entrepreneurship is the explanatory mechanism that can facilitate inclusive growth.

The remainder of the paper is structured as follows. In section 2, we discuss the theoretical framework, which is based on an institutional approach and the link between entrepreneurship and inclusive growth. In section 3, we present the data and the model. The results and discussion are presented in section 4. Finally, section 5 concludes and highlights future lines of research.

## **2. Theoretical framework**

### **2.1. Understanding the relationship between social progress orientation and entrepreneurship**

Schumpeter (1911) gave entrepreneurship a capital role for understanding how the economic system works. The mechanism is driven by entrepreneurs with an inseparable and embedded innovative component. Innovation implemented by entrepreneurs within the market produces disturbances that lead to new path dependencies, stimulating economic development. Such entrepreneurship driven by opportunity is predominantly found in countries characterized by the innovation-driven stage, including Nordic Western European and English-speaking countries (Amorós and Bosma 2014). These countries are also those traditionally associated with a high level of social progress.

Although the traditional approach to social progress is gross domestic product (GDP)-oriented, a more people-centered perspective is gaining momentum among international bodies and scholars (Alkire and Santos 2010; Engelbrecht 2014; Porter 2013; Rojas 2011; Stiglitz et al. 2009). In this regard, the World Bank (WB) with the World Development Indicators (WDI), and the United Nations Development Programme (UNDP) with the Human Development Index (HDI) have devised measurements that consider social outcomes other than GDP, such as poverty, inequality, education, and health care, among others. A similar approach has been taken by Porter (2013), who devised the Social Progress Index to measure the social progress of countries. The index is constituted of three dimensions: basic human needs, (nutrition, basic medical care, water and sanitation, shelter, and personal safety), foundations of well-being (access to basic knowledge, communication and information, good health, and ecosystem sustainability), and opportunity (personal rights, freedom of choice, tolerance and inclusion, and access to advanced education).

Existing literature shows that alternatives to GDP consider a broad range of outcomes when it comes to defining and measuring social progress. However, our

research considers social progress orientation (SPO) as a value beyond economic terms that promotes social welfare. The relationship between SPO and entrepreneurship that is driven by innovation and opportunity can be understood through the institutional approach (North 1990, 2005). According to North, the institutional framework can be classified in terms of formal institutions (sets of rules, laws, procedures, regulations, and constitutions) and informal institutions (sets of values, taboos, customs, beliefs, and attitudes embedded in a society, commonly known as culture). These institutions act as constraints of social interaction and thus provide incentives and opportunities for economic development (Kwon and Yi 2009) that would otherwise not exist (Hodgson 2006). Drawing on this approach, some authors suggest that institutional factors determine entrepreneurial activity (Aidis, Estrin, and Mickiewicz 2008; Bras and Soukiazis 2019; Bruton et al. 2010; Hayton, George, and Zahra 2002; Salimath and Cullen 2010; Thornton et al. 2011; Welter 2005). Others suggest that procedures for starting a business affect entrepreneurship negatively (van Stel, Storey, and Thurik 2007; Zhai et al. 2019), and that risk-taking and creativity encourage entrepreneurial behavior (Urbano et al. 2016; Weinberger et al. 2018).

According to Baumol (1990), Sobel (2008), and Urbano and Aparicio (2019), productive entrepreneurial activity is encouraged more in those developed countries where well-established institutions exist, as compared to developing countries, where there is a lack of formal institutions. Although there should be a complementarity between formal and informal institutions to support entrepreneurial activity (Su 2020; Zhai et al. 2019), the intentionality of progressing while helping others through entrepreneurship may stem from the society's culture (Stephan and Uhlaner 2010; Urbano et al. 2016). Therefore, it is in informal institutions where SPO is embedded. If we focus on SPO as an informal institution, there is some evidence proving that the cultural dimensions<sup>1</sup> affect entrepreneurship (Aidis et al. 2008; Davidsson and Wiklund 1997; McGrath 1992; Shane 1993, 1995; Thomas and Mueller 2000; Wennekers et al. 2007).

Research on postmaterialism (Inglehart 1977, 1990) also places similar emphasis on values beyond material terms. Postmaterialism addresses the cultural change toward values beyond material and economic goals that post-industrial societies have set in recent decades. This shift from traditional survival values to secular values of self-expression is

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<sup>1</sup> As defined by Hofstede (1980, 2005): "Individualism vs. Collectivism"; "Power Distance"; "Masculinity vs. Femininity"; "Uncertainty Avoidance"; and "Long-Term Orientation".

known as the development sequence (Inglehart and Baker 2000). Inglehart and Welzel (2005) explain that societies in advanced economies afford more attention to quality of life, non-monetary well-being (health care and public education), freedom of choice, and association. The relationship between postmaterialist values and entrepreneurship has been explored by few researchers (Morales and Holtschlag 2013; Stephan and Pathak 2016; Uhlaner and Thurik 2007). This relationship is found to be pervasive, meaning that the effect of postmaterialist values on entrepreneurship may vary depending on the economic development stage (Uhlaner and Thurik 2007; Urbano et al. 2016). This is consistent with what previous research has shown. As development rises from a certain level, so too do opportunity and innovative entrepreneurship. This pattern is characterized by a U-shaped relationship and suggests that development offers greater opportunities for entrepreneurs (Carree et al. 2002, 2007; Wennekers et al. 2005; Urbano et al. 2016). Accordingly, entrepreneurship driven by innovation and opportunity is predominant in countries that are in the innovation-driven stage of development and have higher rates of subjective well-being (Amorós and Bosma 2014; Baron, Hmieleski, and Henry 2012). In this sense, Naudé et al. (2013, 2014) suggest that subjective well-being and life satisfaction boost entrepreneurship, as individuals can deploy greater innovative potential when their survival needs are satisfied. Others, such as Stephan et al. (2016) and Stephan and Uhlaner (2010), find that a socially supportive culture as opposed to a performance-oriented culture can encourage entrepreneurial activity. Socially supportive cultures reflect a set of values related to a more human-centered orientation (i.e., encouragement and rewards for being fair, altruistic, generous, caring, and kind to one another) (House et al. 2004).

A similar approach has been developed by the International Institute of Social Studies (ISS) of the Hague, which forms part of Erasmus University, specifically the Indices of Social Development (ISD) in 2011<sup>2</sup> to track informal institutions that promote human and social development. These informal institutions are measured through six dimensions (Foa and Tanner 2012; van Staveren et al. 2013; Webbink 2012): civic activism, clubs and associations, intergroup cohesion, interpersonal safety and trust, gender equality, and inclusion of minorities. Therefore, some of these dimensions might constitute elements of social progress orientation (Urbano et al. 2016). Civic activism

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<sup>2</sup> The methodology of these indices is matching percentiles; further details can be found in Foa and Tanner (2012). <http://www.indsocdev.org/resources>.

refers to the social norms that enable greater citizen participation in public decisions, media, and social movements, such as protests and negotiations. The mechanism behind civic activism that promotes entrepreneurship can be addressed through institutional entrepreneurship, which is considered an important stream of research (Bruton et al. 2010). Following this stream, institutional entrepreneurship is defined as social movements that create new forms of organizations in order to solve social problems (Dees 1998; DiMaggio 1988; Rao, Morrill, and Zald 2000). These social problems are market failures and additionally constitute a source of opportunities for institutional entrepreneurs/activists, who can mobilize resources to fulfill these underserved needs through new forms of organization (Rao et al. 2000). In turn, the social entrepreneurship literature describes new forms of organization as opportunity-exploitation start-up processes triggered by recognition of a social disequilibrium (Fellnhöfer 2017; Martin and Osberg 2007). Other defining elements of social entrepreneurship are its innovative nature and its capacity to add value as the ultimate goal (Austin, Stevenson, and Weiskillern 2006; Mair and Martí 2006; Stephan et al. 2016). Consequently, we propose the following hypotheses:

**Hypothesis 1:** Social progress orientation positively affects entrepreneurial activity.

**Hypothesis 1a:** Civic activism positively affects entrepreneurship.

The voluntary spirit (VOL) to engage in community membership could also be seen as a dimension of social progress orientation and therefore influence entrepreneurial activity. Similarly, the clubs and associations of ISD are defined as the community ties that act as a safety net for the poor by facilitating economic and social assistance. Social ties and connections, such as those found within families and local communities, help individuals to survive. Given the definition of voluntary spirit, it is possible to link this dimension with the social capital approach. The existing literature recognizes the positive correlation between social capital and entrepreneurial activity (Aldrich and Kim 2007; Dana et al. 2019; Davidsson and Honig 2003; De Clercq, Thongpapanl, and Voronov 2018; Kim and Kang 2014; Lee 2012; Schulz and Baumgartner 2013). According to Casson and Della Giusta (2007) and Neumeier et al. (2018), the role of social capital in entrepreneurship can be analyzed in terms of the entrepreneurship process. This stepwise process is composed of opportunity seeking, resource mobilization and market organization. The first step, opportunity seeking, is highly influenced by information



gathering. García-Rodríguez, Gutiérrez-Taño, and Ruiz-Rosa (2019b) and Martínez-González et al. (2019) argue education programs are important initiatives that help high-school and university students to recognize, process, and turn information into entrepreneurial opportunities. Entrepreneurs and leaders with access to education and social capital (clubs, associations, informal networks, and other meetings) can also gain access to information about business opportunities and thus exploit them (Bauernschuster, Falck, and Heblich 2010; Hu, Kang, and Wu 2017; Urbano, Aparicio, and Noguera 2018b). In the same vein, Kwon, Heflin, and Ruef (2013) find empirical evidence for this virtuous feedback loop, which is propelled by the enhanced flow of information among potential customers, entrepreneurs and partners. A similar logic can be applied for resource mobilization, where the trust gained through social capital is key for the acquisition of financial, tangible and intangible resources that entrepreneurs cannot otherwise possess (Aldrich and Martinez 2001; Liao and Welsch 2005). Finally, when an entrepreneur tries to access the market, social capital is shown to be a valid conduit for transforming opportunities into innovative products (Alvarez and Busetniz 2001; Anderson, Park, and Jack 2007). For each step of the entrepreneurship process, social capital is viewed as a factor promoting entrepreneurship. Others find that social capital in high-tech and innovative sectors (Anderson et al. 2007; Sorenson 2003) is especially determinant. Thus, given the suggested link between innovation and opportunity entrepreneurship, we propose the following hypothesis:

**Hypothesis 1b:** Voluntary spirit positively affects entrepreneurship.

The capacity to accept cultural diversity could also be seen as a dimension of social progress orientation. Therefore, interpersonal safety and trust accounts for the capacity of acceptance of diverse groups and cultures. This type of entrepreneurship is found in communities that share a common cultural heritage or origin and where social interrelations influence behavior and economic transactions (Aldrich and Waldinger 1990; Zhou 2004). Ethnic entrepreneurs are characterized by an integrative social component, which includes trust and solidarity (Portes and Zhou 1992). This integrative social component can be found in environments characterized by ethnic diversity, and it attracts human capital, which in turn encourages creativity, innovativeness, long-term investment decisions, and entrepreneurship (Florida 2002; Lee, Florida, and Acs 2004; Turok 2004). Existing qualitative literature suggests that ethnic diversity brings new perspectives into the entrepreneurship process, especially into opportunity seeking

(Nijkamp, Sahin, and Baycan-Levent 2010; Smallbone, Kitching, and Athayde 2010; Ram and Jones 2008). Empirical studies also find a positive effect of group associations on entrepreneurship due to the different perspectives brought to the stage of opportunity seeking (Hernández-Carrión, Camarero-Izquierdo, and Gutiérrez-Cillán 2017; Roberts, Candi, and Hughes 2017; Srećković 2018; Teckchandani 2014). In particular, Levi (2007) finds that ethnic minorities are more likely to engage in entrepreneurship than their United Kingdom (UK) correspondents thanks to a better level of education, skills, different perceptions of opportunities and attitudes toward new business activity. Other studies link ethnicity, cultural diversity, interpersonal safety and trust with migrant entrepreneurship (Ram, Jones, and Villares-Varela 2017), superior proactive entrepreneurship (Nathan and Lee, 2013; Pathak and Muralidharan 2016), innovative start-ups (Audretsch, Dohse, and Niebuhr 2010, Hughes et al. 2014), and opportunity entrepreneurship (Urbano et al. 2016). Thus, we propose the following hypothesis:

**Hypothesis 1c:** Interpersonal safety and trust positively affect entrepreneurship.

## **2.2. Entrepreneurship as a mechanism to achieve inclusive growth**

The relationship between entrepreneurship and economic development has been widely studied in the literature (Acs and Szerb 2007; Acs et al. 2012, 2018; Ács et al. 2014; Audretsch et al. 2008; Erken, Donselaar, and Thurik 2018). However, as Aparicio et al. (2016a, 2016b), Urbano, Aparicio, and Audretsch (2019b), and Wennekers et al. (2005) discuss and suggest, more empirical recent evidence is required given variations in GDP across countries. Thus, entrepreneurship (especially that based on innovation and opportunity) still attracts the attention of many scholars from different disciplines (Thornton et al. 2011). According to Carlsson et al. (2013), entrepreneurship is a factor that mediates the development process. Therefore, the study of entrepreneurship comprises two streams, namely the antecedents and consequences of entrepreneurial activity. One stream of entrepreneurship research is focused on exploring its determinants. The previous section tried to explore the institutional factors that determine entrepreneurship.

However, the question of how the role of entrepreneurship is driven by innovation and opportunity not only in economic growth but also in other social outcomes (e.g., inclusive growth, social mobility, etc.) remains open (Aparicio et al. 2016a; Dean and McMullen 2007). This facilitates the possibility of exploring whether entrepreneurship

has the capacity to simultaneously create new firms and spark knowledge into society (Acs et al. 2012). Indeed, Acs et al. (2012) and Audretsch and Keilbach (2008) suggest that entrepreneurship could be a vehicle for transferring knowledge to the economy, and thus creating social value.

Rodrik (2003) argues that to achieve economic development it is important to consider three components: 1) endogenous factors, which contain the determinants that are directly related to economic growth; 2) partly endogenous factors, which could interact to affect economic growth (i.e., institutions); and 3) exogenous factors, which consist of geography and natural resources. The positive interrelationship between these components could be reflected as a dynamic of economic development.

In the field of economic growth, Romer (1986) includes a variable of knowledge in the neo-classical production function. Similarly, Aghion and Howitt (1992) and Romer (1990) suggest an endogenous growth model, which contains both knowledge and innovative entrepreneurs generating higher economic development through creative destruction. Nevertheless, other authors suggest that a “chain” may exist that links institutions to economic growth throughout entrepreneurial activity (Agarwal, Audretsch and Sarkar 2007; Audretsch 2007; Audretsch and Keilbach 2008; Noseleit 2013; Urbano and Aparicio 2016).

According to Reynolds et al. (2005), entrepreneurship driven by opportunity can be considered as the net result of individual choices to pursue entrepreneurial initiatives based on knowledge. Here, entrepreneurship can be considered the result of an innovation process. Some authors have come to recognize the capacities of potential entrepreneurial innovation and their significant contribution to economic development (Acs and Armington 2006; Audretsch 2007; Levie and Autio 2008; Schramm 2006; Urbano et al. 2019c). McMullen (2011) suggests that an inclusive process may be achieved where institutions encourage individuals to pursue innovative initiatives to help vulnerable communities. According to McMullen, it is possible to generate inclusive growth through entrepreneurship, which in turn is affected by the institutional environment. Similar literature argues that innovative projects are the key to solving the poverty puzzle. Hall et al. (2012), Khavul and Bruton (2013), and Suddaby, Bruton, and Walsh (2018) highlight the importance of innovation and entrepreneurship as a recipe to include the whole society into the economic system.

According to McMullen (2011), the mechanism through which entrepreneurship affects inclusive growth consists of good market conditions and support that expand production by increasing performance (Aparicio and Urbano 2016) and employment (van Praag and Verloot 2007). The higher demand for the labor force creates more opportunities for households to participate in the labor market. This, on the one hand, helps everyone get a job and participate in the production of goods and services, in which people's knowledge conditions their position and therefore the equilibrium of salaries (Content et al. 2019). On the other hand, there is a portion of the population that still is vulnerable and faces both poverty and exclusion. The social progress orientation acts as a sort of culture that encourages entrepreneurs to strive for and achieve not only commercial purposes, but humanitarian ones (Urbano et al. 2016) as well. Hence, social inclusion may emerge thanks to entrepreneurial activity, which helps people with disabilities (Renko, Parker Harris, and Caldwell 2016) and those in extreme poverty (Si et al. 2020). There is recent evidence showing that institutions are important antecedents of entrepreneurial activity, which in turn contributes to poverty reduction in both developed and developing countries. For example, Cumming, Johan, and Uzuegbunam (2020) show inequality, entrepreneurship, and poverty are interrelated across the states of the U.S. In this case, entrepreneurial activity is the mechanism that tackles poverty, although it is discouraged where high inequality exists. Similar evidence is presented in Lin et al. (2020), who show entrepreneurship in China alleviates more poverty in urban areas than rural ones. For these cases in the U.S. and China, it is discussed that policies related to employment and funding are transferred to the vulnerable society throughout entrepreneurship. Drawing upon this literature, we propose the following hypothesis:

**Hypothesis 2:** Entrepreneurial activity is a mechanism that achieves inclusive growth by increasing economic performance and reducing poverty levels across nations.

### **3. Data and methods**

In order to test the above hypotheses, we require a set of equations that endogenously transfer the influence of SPO to entrepreneurship and inclusive growth. The specification of a growth function implicitly assumes that entrepreneurial activity is exogenous. However, as we mentioned before, entrepreneurship needs to be endogenized for two reasons. On the one hand, Carlsson et al. (2013) suggest that future studies in this research field should consider the factors that affect entrepreneurial activity and its role in

socioeconomic outcomes. On the other hand, it is possible to overcome the endogeneity problem between entrepreneurship and economic growth by simultaneously estimating these two variables (Acs et al. 2012; Audretsch et al. 2008; Urbano and Aparicio 2016). Taking this into account, we specify a set of equations that enable us to understand the causal chain running through SPO, entrepreneurship and inclusive growth. Hence, the first equation explicitly considers this recursive structure as well as the other control variables that affect entrepreneurial activity. Namely, the equation of entrepreneurship ( $E_i$ ) takes the form:

$$E_{it} = f(CVA_{it-1}, VOL_{it-1}, IST_{it-1}, v_{it}) \quad (1)$$

where  $CVA_{it-1}$ ,  $VOL_{it-1}$  and  $IST_{it-1}$  are vectors that collect information about civic activism, voluntary spirit, and interpersonal safety and trust, respectively, which are used as proxies of SPO (in 2000, 2005 and 2010), while  $v_{it}$  is the controlling vector that influences entrepreneurial activity in country  $i$  in time  $t$ .

To specify the sequence from SPO, entrepreneurship and economic growth, an augmented production function that includes an explicit measure of entrepreneurship driven by innovation and opportunity is estimated. By drawing on this, we are able to assess the influence of SPO on entrepreneurship on the one hand, and on economic development on the other. The second equation is a Cobb-Douglas function of the form:

$$Y_{it} = \alpha \widehat{E}_{it}^{\beta_1} K_{it}^{\beta_2} L_{it}^{\beta_3} GC_{it}^{\beta_4} P_{it}^{\beta_5} HE_{it}^{\beta_6} \quad (2)$$

where  $Y_i$  is the economic outcome of country  $i$ , measured as GDP,  $\widehat{E}_{it}$  represents its endogenous endowment of entrepreneurship (by innovation, opportunity, and necessity, for comparison reasons),  $K_{it}$ ,  $L_{it}$ ,  $GC_{it}$ ,  $P_{it}$ , and  $HE_{it}$  are country  $i$ 's endowment of capital, labor, government consumption, population and health expenditures as control variables in production function, respectively. Hence, this formally specifies that entrepreneurship could affect the economic development of countries dynamically. Through Eq. (2), it is possible to extend the models presented by Audretsch and Keilbach (2004a, 2004b, 2005) and Audretsch et al. (2008), which emphasize that entrepreneurship is a conduit for the effects of institutions on economic development.

Although Bruton et al. (2013) and McMullen (2011) have suggested that entrepreneurship, influenced by institutions, serves to reduce poverty and generate inclusive growth, there is no literature that quantitatively examines such statements. In

fact, few works have empirically approached inclusive economic outcomes. In this sense, following Berdegué et al. (2015) we estimate a third equation in order to capture the indirect effect of entrepreneurship on poverty, which is mediated by economic growth. According to Berdegué et al. (2015) and McMullen (2011), the result from this sequential process may be considered inclusive growth. The equation is as follows:

$$P_{it} = f(\widehat{Y}_{it}, z_{it}) \quad (3)$$

where  $P_{it}$  is the poverty rate,  $\widehat{Y}_{it}$  is economic growth endogenized through Eq. (2), and  $z_{it}$  represents a series of control variables (Gini index, urban and rural population, secondary and primary enrollment and health expenditure). Therefore, by using three-stage least-squares regression (3SLS), we estimate these three equations simultaneously in order to correct for simultaneity bias (e.g., Intriligator, Bodkin, and Hsiao 1996). This technique assumes that errors in every equation are independent, and that correlations between different periods in the same equation should not exist. In addition, it assumes that no intertemporal correlation across errors for any of the equations between two different periods exists. Instead, contemporaneous correlations are allowed. Nevertheless, it is important to check whether the entire structure fits accurately, which means that the data are smoothly distributed, akin to the population (Rossi 2014). Under these assumptions and conditions, 3SLS can be applied together to all equations, and the results will be more efficient than ordinal least-square (OLS).

Given that this econometric method considers the correlation of the disturbance of each simultaneous equation, its estimators are considered asymptotically more efficient than OLS estimators, whether each equation is regressed separately or not. Accordingly, estimating the coefficients within a generalized least-square (GLS) framework adjusts the weighting matrix for potential heteroskedasticity of the errors (Zellner and Theil 1962). However, it is worth noting that some limitations also exist. First, the method was initially highly demanding in terms of computational capacity (Zellner and Thornber 1966). Fortunately, this problem has been solved thanks to rapid advances in data processing. Second, Gretz and Malshe (2019) have recently analyzed different techniques to overcome endogeneity in marketing research and related areas, and recognize that 3SLS is useful to such purposes. Nonetheless, other estimation methods, such as generalized methods of moments (GMM), may prove more efficient than 3SLS in the presence of

arbitrary heteroskedasticity. Third, 3SLS requires the total over-identification of the model. However, Rossi (2014) explains how the validation of instruments is not as automatic as other techniques (e.g., instrumental variables or 2SLS), and so researchers must take support from theory to claim that any relationships across models actually exist. Finally, Amemiya (1977) suggests that 3SLS might not be an accurate method for nonlinear models. Instead, scholars should apply estimations based on maximum likelihood to capture concavities and convexities. Even though these limitations and alternatives exist, the 3SLS is a versatile technique which allows for the analysis of different equations that are interrelated to each other. Compared to GMM methods, 3SLS gives a salient role to each estimated equation, in which not only the final outcome is the most important, but also those variables taking place in the structure of equations (Gretz and Malshe 2019). Particularly in our case, 3SLS allows us to observe what the role of SPO is in encouraging entrepreneurship, which reduces poverty by increasing the level of economic growth. Based on these strengths, we rely on 3SLS owing to the nature of our data and empirical strategy.

Thus, we use unbalanced panel data for the waves 2000-2002, 2005-2006 and 2010-2011. Our first dependent variables – innovative, opportunity and necessity entrepreneurship – are the best-known indicators of the Global Entrepreneurship Monitor (GEM), and are measured through total early-stage entrepreneurial activity (TEA) driven by innovation, opportunity and necessity. The difference between these three measures is the motivation of each individual to pursue an entrepreneurial career. While TEA innovative refers to those entrepreneurs who are perceived by customers as introducing new products into the market, entrepreneurship driven by opportunity indicates those entrepreneurs who are motivated to pursue perceived business opportunities. Necessity entrepreneurship results from those individuals who are excluded from the labor market. The second dependent variable is economic growth, obtained through GDP at 2010 US\$ constant prices. The third dependent variable is level of poverty, measured through the percentage of population who on a daily basis live with \$US 3.10 or less. The sources of data for measuring these dependent variables are GEM and the WDI of the World Bank. These variables were assessed in 2002, 2006, and 2011.

The data on independent variables were obtained from the ISD website database. Civic activism (CVA) is a variable ranging from 0 to 1, in which higher values represent citizen involvement in public policies and decisions, thanks to social norms,

organizations, and practices. Voluntary spirit (VOL) also spans values from 0 to 1, which represent the membership in local voluntary associations. A continuous variable between 0 and 1 represents interpersonal safety and trust (IST), which embraces the social cohesion capacity between strangers. Data on control variables for Eq. (2) were sourced from the WDI of the World Bank. The variable  $K$  is measured in constant values at 2010 US\$,  $L$  is the percentage of the labor force available in each economy,  $GC$  is the final government consumption at constant prices,  $P$  is the number of inhabitants in each country, and  $HE$  is the percentage of government expenditures in health. According to Bleaney and Nishiyama (2002), the previous variables have proved to be accurate control variables in a growth model. Similarly, for Eq. (3), variables such as the Gini index, which measures the income distribution across the society, urban and rural population, secondary and primary enrollment (measuring the number of enrolled people in private and public schools), and health expenditures were used to control for poverty. By introducing these variables, it is possible to embrace human development, which includes income, schooling and health elements. Both independent and control variables for the three equations correspond to the years 2000, 2005, and 2010. We use natural logarithms in these level variables to estimate the three equations. Accordingly, by transforming these variables it is possible to interpret the coefficient as a percentage change in the dependent variable given by one percentage change in the independent variables. Table 1 presents a list of the dependent and independent variables used in this study, including their sources. Our final sample consists of pooled data on 132 observations and 63 countries (see Appendix 1). It is important to clarify that due to missing values in our variables of interest, some countries in our models may contain fewer observations, so the significance might be conditioned due to the sample size.

**Table 1. Description of variables**

<b>Eq. 1</b>		
<b>Dependent variables</b>	<b>Description</b>	<b>Source<sup>a</sup></b>
TEA Innovative	Percentage of early-stage Entrepreneurial Activity (TEA) reporting that the product or service is new to at least some customers.	GEM
TEA OPP	Percentage within early-stage Entrepreneurial activity (TEA) motivated to pursue perceived business opportunities.	
TEA NEC	Percentage within early-stage Entrepreneurial activity (TEA) involved in entrepreneurship because they have no better option for work.	
<b>Independent variables</b>	<b>Description</b>	<b>Source<sup>a</sup></b>
<i>Social Progress Orientation</i>		



Civic activism	Measure the social norms, organizations, and practices which facilitate greater citizen involvement in public policies and decisions. Values from 0 to 1.	ISD
Voluntary spirit	Measure the membership in local voluntary associations. Data is based on the clubs and associations dimension. Values from 0 to 1.	
Interpersonal Safety and Trust	Measure the social cohesion between strangers, as manifested through bonds of trust, reciprocity, and absence of criminal intent. Data is based on the interpersonal safety and trust dimension. Values from 0 to 1.	
<i>Controls</i>		
Income pc	It is the adjusted value of gross national income minus consumption of fixed capital and natural resources depletion divided by the population.	WDI
Population aged 15-64	Proportion of the population ages 15 and 64 that is economically active.	
Unemployment rate	Share of the labor force that is without work but available for and seeking employment.	
GDP pc growth	Percentage of variation of the GDP per capital (\$US constant of 2010)	

### Eq. 2

Dependent variables	Description	Source <sup>a</sup>
GDP	GDP at purchaser's prices is the sum of gross value added. Data are in constant 2010 U.S.	WDI
Independent variables	Description	Source <sup>a</sup>
Capital	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Data are in constant 2005 U.S. Dollars.	WDI
Labor force	The total labor force is the supply of labor available for producing goods and services in an economy.	
Government consumption	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services.	
Population	Total population is based on the <i>de facto</i> definition of population, which counts all residents regardless of legal status or citizenship.	
Health expenditure	Capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds.	

### Eq. 3

Dependent variable	Description	Source <sup>a</sup>
Poverty	Percentage of the population living on less than \$3.10 a day at 2011 international prices.	WDI
Independent variables	Description	Source <sup>a</sup>
Gini index	Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution.	WDI
Urban population	Number of people living in urban areas as defined by national statistical offices.	
Rural population	Number of people living in rural areas as defined by national statistical offices.	
Secondary enrolment	Total number of pupils enrolled at secondary level in public and private schools.	
Primary enrolment	Total number of pupils enrolled at primary level in public and private schools.	

<sup>a</sup> Global entrepreneurship Monitor (GEM): <http://www.gemconsortium.org/>; Indices of Social Development (ISD): <http://www.indsocdev.org/data-access.html>; World Development Indicators (WDI): <http://data.worldbank.org/data-catalog/world-development-indicators>.

## 4. Findings

### 4.1. Main results

Table 2 reports the means, standard deviations, and correlation coefficients of the variables used in this study. As Table 2 shows, entrepreneurship driven by innovation (TEA innovative), opportunity (TEA OPP) and necessity (TEA NEC) is significantly correlated with some of the dimensions used to measure social progress orientation (SPO). Furthermore, economic growth is significantly correlated with the control variables and TEA OPP. Given the correlations among independent variables, we tested for the problem of multicollinearity of both equations through variance inflation factor (VIF) computations, which might affect the significance of the main parameters in the regressions. Although 3SLS does not allow us to obtain VIF directly, we computed this test for each equation. The VIF values were low (lower than 2.41 for equation 1, 8.75 for equation 2, and 6.34 for equation 3).

Table 3 shows the results of the linear regressions with robust variance estimates. Models 1, 2 and 3 consider only the linear regression with robust variance estimates of the first equation (TEA innovative, OPP, and NEC are functions of the SPO's dimensions), Models 4, 5 and 6 simultaneously assess the first and second equations (economic growth is a function of TEAs, which are a function of the SPO's dimensions) through robust variance estimates, and similarly Models 7, 8 and 9 estimate three equations simultaneously. Here, economic growth, endogenized directly by entrepreneurship and indirectly by SPO, explains social outcomes such as the poverty level. All of the models are highly significant ( $p < 0.01$ ) and have high explanatory power, explaining 73.1 per cent of the variance of TEA innovative, 87.0 per cent of the variance of TEA OPP, and 83.3 per cent of the variance of TEA NEC. In terms of economic growth, on average 99 per cent of the variance is explained. Regarding the poverty equation, 86.2 per cent of its variance is explained. This indicates that in terms of  $R^2$ , the models have a good fit.

**Table 2. Descriptive statistics and correlation matrix**

Variable	Obs.	Mean	St. Dev.	1	2	3	4	5	6	7	8	9
1 TEA Innovative	132	0.443	0.154	1								
2 TEA OPP	96	0.506	0.149	0.101	1							
3 TEA NEC	132	0.232	0.129	-0.035	-0.741*	1						
4 GDP	132	1.16E+12	2.36E+12	-0.030	0.100	-0.029	1					
5 Poverty	47	12.451	16.128	-0.172	-0.002	0.272	0.240	1				
6 Civic activism	131	0.564	0.059	-0.015	0.588*	-0.600*	0.292*	-0.431*	1			
7 Voluntary spirit	103	0.069	0.050	-0.036	-0.396*	0.319*	-0.01	0.075	-0.371*	1		
8 Interpersonal Safety and Trust	130	0.061	0.020	0.002	-0.043	-0.041	0.056	0.332	-0.034	0.101	1	
9 Income pc	125	21014.430	16299.830	-0.020	0.628*	-0.656*	0.261*	-0.623*	0.858*	-0.267*	-0.047	1
10 Population aged 15-64	132	66.983	3.902	0.070	0.113	-0.056	0.038	-0.507*	-0.034	0.217	-0.145	0.171
11 Unemployment rate	132	8.070	4.816	-0.035	-0.405*	0.387*	-0.12	0.053	-0.228*	0.033	-0.213	-0.287*
12 GDP pc growth	132	3.352	3.170	-0.017	-0.151	0.084	0.011	-0.136	-0.071	0.123	0.045	-0.229
13 Capital	131	2.79E+11	5.66E+11	-0.007	0.027	0.041	0.952*	0.210	0.210	0.148	0.114	0.211
14 Labor force	132	70.196	7.643	-0.032	0.484*	-0.481*	0.151	-0.052	0.477*	-0.083	0.073	0.560*
15 Government consumption	131	2.04E+11	3.96E+11	-0.048	0.136	-0.058	0.992*	0.190	0.343*	-0.052	0.028	0.302*
16 Population	132	9.23E+07	2.37E+08	-0.082	-0.225*	0.308*	0.357*	0.450*	-0.225*	0.353*	0.277*	-0.219
17 Health expenditure	131	7.525	2.507	-0.036	0.250*	-0.286*	0.511*	-0.462*	0.680*	-0.186	-0.238*	0.607*
18 Gini index	72	37.522	10.137	0.140	-0.402*	0.464*	0.013	0.623*	-0.570*	0.038*	0.082	-0.608*
19 Urban population	132	50700000	101000000	-0.074	-0.210*	0.317*	0.552*	0.405*	-0.168	0.378*	0.260*	-0.162
20 Rural population	132	41600000	145000000	-0.083	-0.223*	0.283*	0.200	0.472*	-0.252*	0.316*	0.273*	-0.239*
21 Secondary enrolment	122	7582328	18300000	-0.095	-0.252*	0.316*	0.363*	0.450*	-0.234*	0.360*	0.297*	-0.222
22 Primary enrolment	122	7575696	20300000	-0.137	-0.250*	0.319*	0.324*	0.548*	-0.238*	0.333*	0.287*	-0.225
Variable	10	11	12	13	14	15	16	17	18	19	20	21
10 Population aged 15-64	1											
11 Unemployment rate	-0.109	1										
12 GDP pc growth	0.008	-0.166	1									
13 Capital	0.100	-0.151	0.096	1								
14 Labor force	0.210	-0.450*	-0.048	0.168	1							
15 Government consumption	0.015	-0.106	-0.023	0.924*	0.168	1						
16 Population	0.011	-0.164	0.287*	0.529*	0.038	0.291*	1					
17 Health expenditure	-0.092	0.120	-0.205	0.391*	0.300*	0.556*	-0.184	1				
18 Gini index	-0.415*	0.206	0.184	-0.015	-0.271	-0.037	0.433*	-0.386*	1			

19	Urban population	0.052	-0.157	0.293*	0.716*	0.071	0.490*	0.951*	-0.066	0.459*	1		
20	Rural population	-0.019	-0.160	0.265*	0.368*	0.013	0.135	0.976*	-0.256*	0.258	0.860*	1	
21	Secondary enrolment	0.023	-0.168	0.336*	0.532*	0.038	0.297*	0.995*	-0.204	0.472*	0.957*	0.966*	1
22	Primary enrolment	0.010	-0.154	0.266*	0.483*	0.062	0.259*	0.985*	-0.219	0.549*	0.912*	0.985*	0.979*

\* p< 0.1. It means that t-test of correlations tend to be stochastically different from zero.

Note: Obs. Observations; St. Dev. Standard deviation.

**Table 3. Estimating entrepreneurship and inclusive growth**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Eq. 1</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>
Civic activism	3.510*	1.917	0.278	3.433**	1.906*	0.270	1.525	0.993	2.349***
	(1.981)	(2.025)	(0.619)	(1.353)	(1.064)	(0.420)	(1.597)	(1.194)	(0.710)
Voluntary spirit	0.146	0.548	0.444	0.120	0.545	0.444*	0.010	0.353	0.036
	(0.701)	(0.828)	(0.371)	(0.478)	(0.435)	(0.251)	(0.535)	(0.266)	(0.237)
Interpersonal Safety and Trust	2.198	0.342	0.579	2.218**	0.344	0.551	1.913	0.649	0.479
	(1.446)	(1.109)	(0.811)	(0.987)	(0.583)	(0.550)	(2.027)	(1.479)	(0.898)
Income pc	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)	(0.000)	(0.000)	(0.000)	(0.000)
Population aged 15-64	0.012	0.033	-0.009	0.011	0.033**	-0.009	-0.012	-0.001	0.000
	(0.017)	(0.028)	(0.011)	(0.012)	(0.015)	(0.008)	(0.010)	(0.007)	(0.004)
Unemployment rate	-0.002	-0.013	-0.000	-0.002	-0.013**	-0.000	-0.003	-0.005	0.003
	(0.009)	(0.011)	(0.005)	(0.006)	(0.006)	(0.004)	(0.006)	(0.004)	(0.003)
GDP pc growth	-0.007	0.004	-0.011***	-0.007	0.004	-0.011***	0.006	0.013*	-0.005
	(0.007)	(0.008)	(0.004)	(0.005)	(0.004)	(0.003)	(0.010)	(0.007)	(0.004)
Constant	-0.558	-2.948	0.604	-0.734	-2.913**	0.596	0.345	-0.303	-0.883**
	(1.330)	(2.310)	(0.744)	(0.785)	(1.214)	(0.504)	(0.993)	(0.682)	(0.440)
<i>R</i> <sup>2</sup>	0.731	0.870	0.833	0.726	0.869	0.832	0.271	0.287	0.511
<b>Eq. 2</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>
TEA Innovative				0.257***			0.503***		
				(0.096)			(0.119)		
TEA OPP					0.108			0.613***	
					(0.153)			(0.221)	
TEA NEC						-0.136			-0.057
						(0.174)			(0.327)
Ln capital				0.402***	0.406***	0.436***	0.241***	0.282***	0.332***
				(0.043)	(0.053)	(0.042)	(0.059)	(0.069)	(0.075)

Labor force				0.002 (0.002)	0.004 (0.002)	0.003 (0.002)	-0.000 (0.002)	-0.005* (0.003)	-0.003 (0.003)
Ln government consumption				0.460*** (0.040)	0.455*** (0.048)	0.433*** (0.038)	0.519*** (0.060)	0.470*** (0.066)	0.416*** (0.066)
Ln population				0.142*** (0.018)	0.137*** (0.022)	0.128*** (0.020)	0.247*** (0.025)	0.245*** (0.031)	0.248*** (0.037)
Health expenditure				0.021*** (0.008)	0.005 (0.010)	0.007 (0.008)	0.012 (0.014)	0.011 (0.016)	0.008 (0.016)
Constant				2.292*** (0.258)	2.453*** (0.313)	2.497*** (0.302)	3.093*** (0.439)	3.599*** (0.436)	3.792*** (0.496)
<i>R</i> <sup>2</sup>				0.993	0.991	0.991	0.995	0.993	0.994
<b>Eq. 3</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>
Ln GDP							-5.842* (3.123)	-10.129*** (2.664)	-6.594** (3.141)
Gini index							0.564*** (0.149)	0.159 (0.124)	0.551*** (0.150)
Ln urban population							-10.154* (5.810)	-9.939* (5.931)	-9.603+ (5.843)
Ln rural population							6.020*** (1.836)	6.591*** (1.660)	6.420*** (1.845)
Ln secondary enrolment							4.397 (5.199)	7.639 (5.510)	4.801 (5.231)
Ln primary enrolment							6.396** (2.830)	7.945*** (2.641)	5.834** (2.842)
Health expenditure							1.100 (0.890)	2.022** (0.846)	1.229 (0.895)
Constant							49.838 (33.814)	91.120*** (28.762)	55.972* (34.019)
<i>R</i> <sup>2</sup>							0.833	0.862	0.834
Observations	101	83	115	101	83	115	36	31	36
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hausmann (OLS vs. 3SLS)				0.998	0.997	0.998	0.994	0.867	1.000
F-test for overall system (McElroy)				173.834***	82.849***	127.6462***	232.995***	185.356***	177.039***

\*\*\* p < 0.01; \*\* p < 0.05; \* p < 0.10; + = 0.10. Note: Heteroskedasticity corrected standard errors are shown in parentheses.

The first set of models considers equation 1, which contains civic activism (CVA), voluntary spirit (VOL), interpersonal safety and trust (IST), and the control variables. The results show that CVA, VOL and IST have a positive influence (3.510,  $p < 0.1$ ; 0.146,  $p > 0.1$ ; 2.198,  $p > 0.1$ , respectively) on TEA innovative; (1.917,  $p > 0.1$ ; 0.548,  $p > 0.1$ ; 0.342,  $p > 0.1$ , respectively) on TEA OPP; and (0.278,  $p > 0.1$ ; 0.444,  $p > 0.1$ ; 0.579,  $p > 0.1$ , respectively) on TEA NEC. Regarding Models 4-6, which consider equations 1 and 2 simultaneously, the results show that the dimensions of SPO - CVA (3.433,  $p < 0.05$  in Model 4; 1.906,  $p < 0.1$  in Model 5; and 0.270,  $p > 0.1$  in Model 6); VOL (0.120,  $p > 0.1$  in Model 4; 0.545,  $p > 0.1$  in Model 5; and 0.444,  $p < 0.1$  in Model 4); and IST (2.218,  $p < 0.05$  in Model 4; 0.344,  $p > 0.1$  in Model 5; and 0.551,  $p > 0.01$  in Model 6) affect economic growth through TEA innovative ( $b = 0.257$ ,  $p < 0.01$  in Model 4), TEA OPP ( $b = 0.108$ ,  $p > 0.1$  in Model 5), and TEA NEC ( $b = -0.136$ ,  $p > 0.1$  in Model 6). In terms of the third equation, we find that economic growth reduces poverty (-5.842,  $p < 0.1$  in Model 7; -10.129,  $p < 0.01$  in Model 8; and -6.594,  $p < 0.05$  in Model 9), while is positively affected by entrepreneurship driven by innovation ( $b = 0.503$ ,  $p < 0.01$  in Model 7), opportunity ( $b = 0.613$ ,  $p < 0.01$  in Model 8), and necessity ( $b = -0.057$ ,  $p > 0.1$ ). In addition, based on the results obtained in the control variables, we could suggest that the feedback effects that economic growth and entrepreneurship enjoy are a source of new business opportunities that must be detected and exploited (Galindo and Méndez 2013).

#### 4.2. Hypothesis testing

In Hypothesis 1a we suggest a positive influence of civic activism (CVA) on entrepreneurship (TEA innovative and TEA OPP). According to the results, societies with greater CVA enjoy greater entrepreneurial activity driven by innovation and opportunity recognition; therefore, Hypothesis 1a is not rejected. Existing literature links civic activism with new firm formation as a means to challenge market failures and to create social value through the detection and exploitation of opportunities embedded in the political environment (DiMaggio 1988; Dees 1998; Rao et al. 2000). Other authors posit social entrepreneurship as a process where the combination of resources and innovation is convergent with social improvement (Austin, Stevenson, and Wei-Skillern 2006; Mair and Martí 2006). Thus, the innovative nature of social entrepreneurship can be translated into new firm creation based on opportunity motives.

For Hypothesis 1b, we suggest a positive effect of voluntary spirit (VOL) on the different measures of entrepreneurship. Although the results only exhibit a significant influence on TEA NEC (which is not the focus of our study), the sign holds for TEA innovative and TEA OPP. According to the results, societies with greater VOL present greater entrepreneurial traits, but the results do not support Hypothesis 1b. Nevertheless, as noted in the theoretical section, we associate VOL with social capital. Therefore, in environments where VOL is high, information can readily flow between entrepreneurs, customers and suppliers, allowing better access to opportunities, resources and markets (Aldrich and Martinez 2001; Anderson et al. 2007; Bauernschuster et al. 2010). Consequently, and consistent with previous research, we find that TEAs might flourish in environments more amenable to social capital (networks, associations, and so on). Social capital is found to be a factor that positively influences entrepreneurship (Aidis et al. 2008; Davidsson and Honig 2003; Kwon et al. 2013; among others).

For Hypothesis 1c, we suggested a positive effect of interpersonal safety and trust (IST) on entrepreneurship. According to the results obtained in Model 4, societies with greater IST have greater TEA innovative, and thus Hypothesis 1c is not rejected. IST can be translated into greater social cohesion in communities characterized by high cultural diversity, and in turn provide an appropriate environment for attracting creative and innovative entrepreneurs (Florida 2002; Turok 2004). These results are consistent with Urbano et al. (2016), who suggest a positive influence of cultural diversity on entrepreneurship. Others suggest that this type of environment can also be seen as a source of opportunities owing to the variety of needs that diverse cultures may express (Ram and Jones 2008; van Delft et al. 1999).

The analysis for Hypotheses 1a through 1c may serve to better comprehend Hypothesis 1, in which we predicted that social progress orientation (SPO) would positively affect entrepreneurial activity. As presented before, this study finds that societies with a stronger SPO characterized by civic activism (CVA), voluntary spirit (VOL) and interpersonal safety and trust (IST) exhibit superior entrepreneurial activity, and so Hypothesis 1 is not rejected. These results may suggest that SPO provides a set of environmental factors that enable the deployment of people's potential, manifested through TEA innovative and TEA OPP. Inglehart (1977, 1990) has claimed that postmaterialist values are about free choice, self-realization and the deployment of the full personal potential. In that sense, behind entrepreneurship driven by innovation and

opportunity are motives related to personal improvement, which can be accommodated in the postmaterialist perspective. Our results are also consistent with Stephan and Uhlaner (2010), who find that a socially supportive culture encourages entrepreneurship. This socially supportive culture is characterized by a humane orientation. In the same vein, Naudé et al. (2013, 2014) suggest that subjective well-being and life satisfaction positively influence entrepreneurial activity. When controlling for economic development, such an environment is believed to engender opportunities for entrepreneurs who possess agency (the motivations behind TEA innovative and TEA OPP may find a better fit in more socially progressed environments). The results are also in alignment with existing literature that suggests a “U-shaped” relationship between development and entrepreneurial activity. As development occurs, entrepreneurial activity declines to the point where TEA innovative and TEA OPP increase (Carree et al. 2002; Wennekers et al. 2005).

Connected to the previous results, Hypothesis 2 suggested that entrepreneurial activity is a mechanism which achieves inclusive growth by increasing economic performance and reducing the level of poverty across countries. We find both that TEA innovative and TEA OPP (influenced by SPO) are positively related to economic growth, and that this reduces poverty considerably. In this case, Hypothesis 2 is not rejected. As we mentioned earlier, innovative and opportunity entrepreneurship define a different characteristic in each country in terms of innovation processes. According to Urbano and Aparicio (2016) and Wong et al. (2005), among others, entrepreneurial activity influenced by intentionality toward progress tends to affect positively on economic development. This is consistent with Audretsch and Keilbach’s (2004a) results. According to these authors, the entrepreneurial activity associated with innovation has a positive influence on economic performance. Drawing on Audretsch and Keilbach (2004a), we point out that the effect of TEA innovative and TEA OPP on economic development do not significantly differ between these countries. This idea, supported by Valliere and Peterson (2009), suggests that those countries that encourage entrepreneurial activity based on innovation could obtain improved performance in terms of socioeconomic outcomes. Accordingly, entrepreneurial activity based on innovation is one missing link in converting knowledge into economically relevant knowledge (Braunerhjelm et al. 2009; Mueller 2007), and therefore economic growth could be stimulated to increase social inclusion (McMullen 2011). Based on this discussion, we



can suggest that entrepreneurship plays a relevant role in promoting inclusive growth, where the institutional endowment presents superior SPO.

#### 4.3. Robustness checks

To check whether the models are stable, well-specified, and consistent, three tests were conducted. First, Carree et al. (2007) have shown that important extreme values may be found across the distribution of entrepreneurship at the country level. In this regard, it is important to check whether potential outliers affect the final results. To this end, all of the variables were winsorized to the top and bottom 1 per cent. The results in Appendix 2 are very similar to the non-winsorized variables (Table 3), so there may be consistency in favor of 3SLS. It is important to mention that some variables lose significance, as it was discussed above though, this might be due to a reduced sample size.

Second, in order to check whether the models are correctly specified, we have departed from similar empirical strategies about social progress orientation and entrepreneurship (cf. Stephan and Pathak 2016; Stephan and Uhlaner 2010; Uhlaner and Thurik 2007; Urbano et al. 2016), entrepreneurial activity and growth (cf. Acs et al. 2012; Audretsch and Keilbach 2004a, 2004b, 2005), and the simultaneity between these two equations (cf. Aparicio et al. 2016a; Audretsch and Keilbach 2008; Bosma et al. 2018). Based on Antonelli and Gehringer (2017) and Berdegú et al. (2015), we have also specified a model for inclusive growth. We then ran tests to confirm that the complete system of equations has a good fit (Rossi 2014). Drawing on McElroy's (1977) formulation, we computed the F test for all models in Table 3. These findings indicate that given the number of observations, parameters, and equations, the system fits accurately ( $p < 0.01$ ).

Finally, we performed same models through OLS (Appendix 3) to check whether the estimations are similar to those obtained through 3SLS. We computed the Hausman test to assess systematic differences between the coefficients. The results in Table 3 show that these results are stable no matter the technique applied, which means that systematic differences do not exist in the coefficients of the equations modeled through 3SLS versus OLS. It is worth noting that 3SLS is a system that may prove more efficient than estimating every model by 2SLS if the error terms of the equations are indeed correlated. Zellner and Theil (1962) suggest that both use the same moment conditions. This is why

we omitted estimations through 2SLS. Based on this reasoning, estimations through 3SLS may be more consistent than OLS, which are suitable for the analysis.

These tests and findings have allowed us to observe that the results in Table 3 may come from well-specified models, which provide stable and consistent results. Therefore, we have relied on the fact that SPO had a robust influence on entrepreneurial activity, which in turn affected inclusive growth.

## **5. Discussion and conclusions**

The purpose of this research was to analyze the effect of social progress orientation (SPO) on inclusive growth through entrepreneurship driven by innovation and opportunity. Using a three-stage least-squares (3SLS) method and information from the Global Entrepreneurship Monitor (GEM), the Indices of Social Development (ISD) and the World Development Indicators (WDI) from the World Bank (WB), we have found that SPO positively affects inclusive growth through innovative and opportunity entrepreneurship. Building on the concept of postmaterialism (Inglehart 1977, 1990), we have conceptualized SPO through the dimensions of civic activism, voluntary spirit, and interpersonal safety and trust.

The civic activism (CVA) dimension measures participation in public life and civic engagement. We have built on the existing literature on institutional and social entrepreneurship to find a positive effect on innovative and opportunity entrepreneurship and subsequently on inclusive growth. In this case, the literature has suggested that entrepreneurs are also capable of creating institutional change through actively participating in political movements (Rao et al. 2000). Our results have served to support the notion regarding the emergence of new opportunities for entrepreneurship thanks to better institutions that are indeed demanded by entrepreneurs (Mintrom and Norman 2009). Under a more stable institutional context, entrepreneurs may focus their attention on social issues, thus contributing beyond economic terms. Inspired by Mair and Marti (2006), our results show that in the presence of civic activism, both innovative and opportunity entrepreneurship contribute to social outcomes such as inclusion.

Another important result comes from the voluntary spirit (VOL) dimension. This measures membership in voluntary associations, and can thus be associated with social capital. We have identified a positive influence on entrepreneurship driven by necessity, and in turn on economic growth and poverty. In line with similar studies (cf. Davidsson

and Honig 2003; De Clercq et al. 2018), our evidence also confirms that association among people serves to spread information and expand the entrepreneurial landscape for those who do not have opportunities in the labor market. In this case, people create networks under the idea of contributing to society through their free time, abilities and resources. Such associations can lead to results beyond economic terms (Squazzoni 2009), as people act together with common social purposes.

For the interpersonal safety and trust (IST) dimension, we surveyed the literature on ethnic entrepreneurship and cultural diversity, finding that superior IST encourages innovative entrepreneurship, which in turn promotes economic growth. Smallbone et al. (2010) have explained that people from different backgrounds and sharing places (i.e., cities, regions, countries) create innovations, as some places may not enjoy the same products or services. The emergence of these innovative entrepreneurial activities may constitute a source of social development (Smallbone, Dabic, and Kalantaridis 2017). It is worth noting that CVA is the most significant variable across our models. However, it does not mean that VOL and IST are less important than CVA. It turns out that these three variables are highly correlated, so civic activism may absorb the main influence of voluntary spirit on entrepreneurial activity, as well as interpersonal safety and trust.

Thus, taking our findings together, we suggest that SPO can be a valid instrument for the promotion of inclusive growth through entrepreneurship predominantly driven by innovation and opportunity. Our results could add further insights to current evidence about supportive cultures for entrepreneurship and development (Stephan and Uhlaner 2010; Stephan et al. 2016). It may be possible to assert that although there is a proportion of entrepreneurs who have commercial purposes, there may be another smaller proportion of entrepreneurial activities devoted to social issues such as inclusion through poverty reduction (Acs, Boardman, and McNeely 2013; Bruton et al. 2013; McMullen 2011; Si et al. 2020).

Overall, this research contributes to the existing literature in the following ways. By examining the concept of SPO (Urbano et al. 2016), it contributes to the application of the institutional approach to the study of the determinants of entrepreneurship and the endogenous factors of economic development in an integrative manner. To date, these two phenomena have been analyzed in isolation. In addition, this research has explored the ISD database, which to our knowledge has thus far been neglected. Our findings concur with the recent call for a more people-oriented approach to social progress (Porter

2013; Stiglitz et al. 2009) and add new insights to the argument that SPO and economic development are not mutually exclusive. To sum up, following the Schumpeterian stream and using the institutional approach, this research serves two different fields of study: the entrepreneurship field, and the economic development field.

Regarding its implications, our research can offer new insights for entrepreneurs and policy makers. By understanding the factors that promote new firm creation, especially those driven by innovation and opportunity, it can direct actions to promote economic development. In this context, SPO may be a factor to consider. For instance, if we acknowledge the IST dimension of SPO, Jewish communities of expatriates require a kosher certificate for the sale and consumption of certain food items. Hence, adjusting the portfolio to kosher requirements can be seen as an opportunity for those who are interested in creating new ventures in food production and certification (Urbano et al. 2019b). This evidence also adds new insights into the discussions Cumming et al. (2020) and Lin et al. (2020) offer about entrepreneurship and poverty alleviation. In this regard, entrepreneurs may find in our results a source of valuable information when designing strategies with a human orientation. On the one hand, they can perceive that somehow entrepreneurial initiatives bring benefits for everyone, including those vulnerable communities. On the other hand, entrepreneurs may focus on social purposes in regions and countries that not only offer supportive policies (Shane 2009), but also cultural support (Urbano et al. 2016). Thus, commercial and humanitarian strategies may expand markets, creating opportunities for entrepreneurs and wider society.

For policy makers who seek levers to boost economic performance, we suggest that reinforcing SPO produces a positive effect on innovative and opportunity entrepreneurship, which in turn affects endogenous growth as an endogenous factor. These insights can be useful for the design of programs designed to promote economic development through entrepreneurial activity, especially those driven by innovative projects and opportunity seeking. For instance, if we consider the VOL dimension, the social capital accrued in enterprise incubator centers can provide entrepreneurs with the elements to detect and exploit business opportunities that would otherwise prove difficult to reach. Incubator centers are at the core of public policies to promote economic development across regions (Bøllingtoft and Ullhøi 2005). In this regard, the European Union (EU) is promoting entrepreneurship with the Entrepreneurship 2020 Action Plan, of which incubators form an important part.

Our research also has some limitations. For instance, we consider three different groups of years, 2000-2002, 2005-2006 and 2010-2011, which are separated by the great recession of 2008. This economic downturn may have affected cultural values and firm dynamics from 2008 onwards (Bishop and Shilcof 2017; Doern, Williams, and Vorley 2019; Mathews, Tan, and Hu 2018), bearing in mind that our sample was built with ISD data from 2010 with little reflection of such events. According to Inglehart (1977, 1990), values are stable and cultural change is produced by generational replacement or economic longstanding increase (decrease); thus, we expect that in further deliveries the ISD may offer new waves of data to build new research. Concerning the econometric techniques, ideally and initially a longitudinal analysis was considered; however, the lack of year-to-year data is a common failing of all databases that aim to measure culture, values, attitudes, and so on (cf. Bennett 2018; Bosma et al. 2018). The ISD is by no means an exception. Data on poverty are also scarce, so the results might be affected by this limitation. Nevertheless, entrepreneurship research has move forward despite this problem. For example, Cieřlik, Kaciak, and van Stel (2018), Ferreira et al. (2017), Hamann and Bertels (2018), and Uhlaner and Thurik (2007) have found important antecedents and consequences of entrepreneurial activity with small samples. As we are not the exception, this fact led us to adopt static panel data regressions. Perhaps other scholars might be interested in exploring data sets that enable a balanced structure in order to tackle sample size issues. As Ács et al. (2014) and Acs et al. (2018) suggest, the Global Entrepreneurship and Development Index (GEDI) might offer a suitable alternative. Furthermore, the operationalization of SPO through the ISD is open to criticism, especially when Hofstede's cultural dimensions can offer a better explored and contrasted approach to entrepreneurship research (Hayton et al. 2002; Salimath and Cullen, 2010). The decision to use the dimensions of the ISD was based on theoretical and practical reasons, as stated before: existing research on institutional entrepreneurship, social entrepreneurship, social capital, ethnic entrepreneurship and cultural diversity offered a convenient fit for CVA, VOL and IST, respectively.

For further research and given our first approach to SPO, there is the need to amplify the theoretical foundations and test the validity of the SPO more extensively (Urbano et al. 2019b), an idea reinforced by the over-identification problem identified through the Lagrange multiplier. As mentioned earlier, the application of longitudinal analysis can help to validate our findings over time. Other multivariate techniques can

also be applied to prove and enhance the construct validity, especially factor analysis. Given that the ISD provides six dimensions, capturing the essence of the construct with factor analysis may enhance the representativeness of the SPO. In this sense, as mentioned before, the usage of Hofstede's cultural dimensions may provide sounder foundations for capturing the essence of social progress orientation (SPO).

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### Appendix 1. List of countries

Country	No. of years	Country	No. of years
Algeria	1	Latvia	2
Argentina	3	Lithuania	1
Australia	3	Malaysia	2
Bangladesh	1	Mexico	3
Barbados	1	Netherlands	3
Belgium	3	New Zealand	1
Bosnia and Herzegovina	1	Nigeria	1
Brazil	3	Norway	3
Canada	2	Pakistan	1
Chile	3	Panama	1
China	3	Peru	2
Colombia	2	Philippines	1
Croatia	3	Poland	2
Czech Republic	2	Portugal	1
Denmark	3	Romania	1
Finland	3	Russian Federation	3
France	3	Singapore	3
Germany	3	Slovak Republic	1

Greece	2	Slovenia	3
Guatemala	1	South Africa	3
Hong Kong SAR, China	1	Spain	3
Hungary	3	Sweden	3
Iceland	2	Switzerland	2
India	2	Thailand	3
Indonesia	1	Trinidad and Tobago	1
Iran	1	Turkey	2
Ireland	3	United Arab Emirates	2
Israel	1	United Kingdom	3
Italy	2	United States	3
Jamaica	2	Uruguay	2
Japan	3	Venezuela	1
Korea	2	Total	132

**Appendix 2. Estimating entrepreneurship and inclusive growth (winsorized variables)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Eq. 1</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>
Civic activism	1.765 (1.237)	0.342 (1.109)	0.634 (0.808)	2.138** (0.860)	0.344 (0.590)	0.611 (0.549)	1.871 (2.067)	0.486 (1.601)	0.394** (0.189)
Voluntary spirit	0.705 (0.565)	0.548 (0.828)	0.387 (0.356)	0.580 (0.379)	0.546 (0.441)	0.387 (0.242)	0.009 (0.548)	0.269 (0.382)	0.146 (0.235)
Interpersonal Safety and Trust	0.206 (0.944)	1.917 (2.025)	0.620 (0.628)	1.586 (1.168)	1.908* (1.078)	0.610 (0.427)	1.524 (1.694)	0.779 (1.360)	1.592** (0.712)
Income pc	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)	0.000 (0.000)	-0.000*** (0.000)
Population aged 15-64	0.003 (0.017)	0.033 (0.028)	-0.009 (0.011)	0.008 (0.012)	0.033** (0.015)	-0.009 (0.007)	-0.012 (0.010)	-0.002 (0.009)	-0.001 (0.004)
Unemployment rate	-0.004 (0.008)	-0.013 (0.011)	0.002 (0.005)	-0.002 (0.006)	-0.013** (0.006)	0.002 (0.004)	-0.003 (0.006)	-0.003 (0.004)	0.003 (0.002)
GDP pc growth	-0.008 (0.006)	0.004 (0.008)	-0.011*** (0.004)	-0.008** (0.004)	0.004 (0.004)	-0.011*** (0.003)	0.006 (0.010)	0.011 (0.008)	-0.004 (0.004)
Constant	-0.398 (1.134)	-2.948 (2.310)	0.437 (0.715)	-0.665 (0.807)	-2.919** (1.230)	0.429 (0.486)	0.344 (1.062)	-0.106 (0.932)	-0.556 (0.425)
<i>R</i> <sup>2</sup>	0.724	0.865	0.823	0.727	0.865	0.829	0.273	0.226	0.510
<b>Eq. 2</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>
TEA Innovative				0.226** (0.105)			0.485*** (0.118)		
TEA OPP					0.081 (0.158)			0.334 (0.217)	
TEA NEC						-0.122 (0.183)			-0.014 (0.359)
Ln capital				0.435*** (0.043)	0.417*** (0.055)	0.443*** (0.045)	0.248*** (0.059)	0.303*** (0.073)	0.339*** (0.078)
Labor force				0.004* (0.002)	0.003 (0.003)	0.003 (0.002)	-0.001 (0.002)	-0.005 (0.003)	-0.003 (0.003)
Ln government consumption				0.454*** (0.042)	0.454*** (0.051)	0.435*** (0.042)	0.509*** (0.060)	0.443*** (0.068)	0.408*** (0.069)
Ln population				0.110*** (0.017)	0.127*** (0.025)	0.121*** (0.021)	0.252*** (0.026)	0.251*** (0.033)	0.250*** (0.037)

Health expenditure				0.005 (0.008)	0.005 (0.010)	0.007 (0.008)	0.011 (0.014)	0.005 (0.016)	0.006 (0.016)
Constant				2.141*** (0.275)	2.391*** (0.318)	2.439*** (0.307)	3.111*** (0.436)	3.785*** (0.482)	3.804*** (0.499)
<i>R</i> <sup>2</sup>				0.991	0.991	0.991	0.995	0.994	0.994
<b>Eq. 3</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>
Ln GDP							-6.138* (3.293)	-8.113** (3.224)	-6.756** (3.305)
Gini index							0.568*** (0.152)	0.303** (0.149)	0.556*** (0.153)
Ln urban population							-9.997* (5.908)	-11.760* (6.153)	-9.659 (5.936)
Ln rural population							5.912*** (1.876)	6.272*** (1.732)	6.248*** (1.885)
Ln secondary enrolment							4.944 (5.513)	8.309 (5.866)	5.409 (5.547)
Ln primary enrolment							6.081** (3.049)	6.923** (2.882)	5.593* (3.061)
Health expenditure							1.063 (0.912)	1.721** (0.873)	1.157 (0.917)
Constant							53.239 (35.674)	74.234** (33.939)	58.691 (35.843)
<i>R</i> <sup>2</sup>							0.830	0.847	0.832
Observations	99	81	110	111	81	110	35	29	35
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

\*\*\* p < 0.01; \*\* p < 0.05; \* p < 0.10; + = 0.10. Note: Heteroskedasticity corrected standard errors are shown in parentheses.



### Appendix 3. Estimating entrepreneurship and inclusive growth through OLS

<b>Eq. 1</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>	<b>TEA Innovative</b>	<b>TEA OPP</b>	<b>TEA NEC</b>
Civic activism	2.198 (1.446)	0.342 (1.109)	0.579 (0.811)	1.247 (2.438)	0.366 (1.953)	0.611 (1.062)
Voluntary spirit	0.146 (0.701)	0.548 (0.828)	0.444 (0.371)	0.077 (0.644)	0.272 (0.347)	0.020 (0.280)
Interpersonal Safety and Trust	3.510* (1.981)	1.917 (2.025)	0.278 (0.619)	1.238 (1.925)	1.212 (1.559)	2.429*** (0.838)
Income pc	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000** (0.000)
Population aged 15-64	0.012 (0.017)	0.033 (0.028)	-0.009 (0.011)	-0.007 (0.012)	-0.002 (0.009)	-0.001 (0.005)
Unemployment rate	-0.002 (0.009)	-0.013 (0.011)	-0.000 (0.005)	-0.004 (0.007)	-0.001 (0.005)	0.003 (0.003)
GDP pc growth	-0.007 (0.007)	0.004 (0.008)	-0.011*** (0.004)	0.007 (0.012)	0.009 (0.009)	-0.005 (0.005)
Constant	-0.391 (1.119)	-2.948 (2.310)	0.604 (0.744)	0.272 (1.192)	-0.369 (0.884)	-0.874* (0.519)
<i>R</i> <sup>2</sup>	0.731	0.869	0.833	0.285	0.338	0.513
<b>Eq. 2</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>	<b>Ln GDP</b>
TEA Innovative	0.185** (0.088)			0.325*** (0.108)		
TEA OPP		0.072 (0.147)			0.250 (0.230)	
TEA NEC			-0.096 (0.153)			-0.087 (0.279)
Ln capital	0.405*** (0.044)	0.409*** (0.055)	0.439*** (0.043)	0.269*** (0.065)	0.361*** (0.085)	0.324*** (0.079)
Labor force	0.001 (0.002)	0.004 (0.003)	0.003 (0.002)	-0.001 (0.003)	-0.004 (0.003)	-0.003 (0.003)
Ln government consumption	0.456*** (0.041)	0.455*** (0.050)	0.433*** (0.039)	0.485*** (0.066)	0.411*** (0.081)	0.418*** (0.073)
Ln population	0.141*** (0.019)	0.135*** (0.023)	0.126*** (0.019)	0.247*** (0.029)	0.228*** (0.036)	0.255*** (0.038)
Health expenditure	0.022** (0.008)	0.005 (0.010)	0.007 (0.008)	0.011 (0.016)	0.013 (0.019)	0.010 (0.019)
Constant	2.363*** (0.265)	2.435*** (0.328)	2.466*** (0.301)	3.363*** (0.487)	3.426*** (0.519)	3.810*** (0.552)
<i>R</i> <sup>2</sup>	0.993	0.991	0.991	0.995	0.994	0.994
<b>Eq. 3</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>	<b>Poverty</b>
Ln GDP				-7.454** (3.517)	-10.368*** (3.278)	-8.686 (5.354)
Gini index				0.543*** (0.170)	0.321** (0.159)	0.440 (0.287)
Ln urban population				-8.779 (6.598)	-10.325 (7.426)	-0.783 (7.621)
Ln rural population				6.756*** (2.091)	7.717*** (2.100)	4.128 (2.461)
Ln secondary enrolment				5.004 (5.932)	8.186 (7.082)	0.923 (5.457)
Ln primary enrolment				5.369* (3.216)	5.968* (3.302)	5.032* (2.920)
Health expenditure				1.380 (1.011)	1.506 (1.055)	0.782 (1.247)
Constant				62.618	103.214***	74.996

				(38.248)	(35.680)	(54.878)
$R^2$				0.835	0.872	0.685
Observations	101	83	115	36	31	36
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

\*\*\* p < 0.01; \*\* p < 0.05; \* p < 0.10; + = 0.10. Note: Heteroskedasticity corrected standard errors are shown in parentheses.