

ENTREPRENEURSHIP, SOCIAL CAPITAL, AND INSTITUTIONS:¹

SOCIAL AND COMMERCIAL ENTREPRENEURSHIP ACROSS NATIONS

Saul Estrin

London School of Economics, CEPR and IZA

Tomasz Mickiewicz

Aston University

Ute Stephan

University of Sheffield

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Corresponding Author: Saul Estrin, Department of Management, LSE, Houghton St, London WC2A2AE, UK: email: s.estrin@lse.ac.uk

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ABSTRACT

We model and test the relationship between social and commercial entrepreneurship drawing on social capital theory. We propose that the country prevalence rate of social entrepreneurship is an indicator of constructible nation-level social capital and enhances the likelihood of individual commercial entry. We further posit that both social and commercial entrepreneurial entry is facilitated by certain formal institutions, namely strong property rights and (low) government activism, albeit the latter impacts each of these types of entrepreneurship differently. We apply bivariate discrete choice multi-level modelling to population-representative samples in 47 countries and find support for these hypotheses.

INTRODUCTION

The value of commercial entrepreneurship for wealth creation is established at the forefront of business research. Recently, socially motivated forms of entrepreneurship, that is social entrepreneurship, have gained attention due to their promise of alleviating social problems such as poverty, discrimination or exclusion. However, social entrepreneurship and its function within the economic system remains undertheorized including how social entrepreneurship might interact with commercial entrepreneurship. For instance, would policy makers supporting one form of entrepreneurship thereby crowd out or reinforce the other form? Does social entrepreneurship compete with commercial entrepreneurship perhaps for talent and other resources, or could high rates of social entrepreneurship be beneficial to commercial entrepreneurship? We draw on social capital theory and institutional theory to consider the relationship between social and commercial entrepreneurship, as well as to theorize about national institutions facilitating the emergence of both. In doing so, we extend nation-level social capital theory by highlighting an emergent, bottom-up process of social capital creation. We

maintain that the effects of social entrepreneurship may be wider than directly addressing social needs: it also creates a form of social capital appropriable by commercial entrepreneurs.

Nation-level social capital theory has focussed on social capital as “endowed”, rooted in long lasting, difficult to change cultural traits (e.g. Adler & Kwon, 2002; Westlund & Adams, 2010); we add to this by highlighting an emergent, bottom-up process of social capital creation. Moreover, common indicators of nation-level social capital focus on cohesive networks and associations, which do not automatically generate positive externalities because the gains may come at the cost of excluding outsiders (Portes, 1998). In contrast, we posit social entrepreneurship as a source of social capital with strong positive externalities.

The actions of social entrepreneurs and the enterprises they create enhance cooperative norms within a nation, providing positive signals about caring for others through working to support societal objectives and group needs. Through their work, they build collaborative relationships with stakeholders, bridging diverse social groups and overcoming social exclusion by building new ties across social groups. By undertaking other-regarding exchanges, social entrepreneurs enhance cooperative norms and weak-tie social capital. This lowers transaction costs, making it easier for commercial entrepreneurs to access new information, resources and opportunities. We therefore respond to Zahra and Wright’s (2011) call for further research on the linkages between social and commercial entrepreneurship, and propose the concept of social capital as appropriate lenses to apply to this relationship. Our new nation-level measure views social capital as cooperative norms and emphasizes its development as being constructible through self-organisation rather than as being endowed. Our study also advances past research into social entrepreneurship which has been primarily conceptual or case-based in nature (see for instance, Dacin et al., 2010, Short et al., 2009, Nicholls, 2010).

Our argument also extends the literature which presents social entrepreneurship as an important aspect of institutional change in that social entrepreneurs create frameworks for market transactions that can later be exploited by commercial entrepreneurs (Mair & Marti, 2006, 2009; Mair, Marti & Ventresca, 2012; McMullen, 2011). Thus, social entrepreneurs may extend market opportunities to those for whom access was previously difficult, overcoming economic as well as social barriers; their experimentation with organisational forms and business solutions widens the scope for market transactions. In that process, social entrepreneurship can create social capital specifically appropriable for commercial entrepreneurs.

Given the hypothesized benefits of social entrepreneurship, it is of theoretical and policy interest to identify supporting institutions. This also helps us better to understand the roots of change in social structures. Rather than always seeing social capital as anchored in stable cultural traits, it may in addition be linked to national institutions amenable to change. While we understand relatively well which institutions enable individuals to undertake commercial entrepreneurship (see e.g. McMullen, Bagby & Palich, 2008; Autio & Acs 2009; Aidis, Estrin & Mickiewicz, 2012; Estrin, Korosteleva & Mickiewicz, 2012), the impact of institutional arrangements on individual agency in the social sphere is less well understood. We therefore develop and test new hypotheses about the impact of formal institutions on social entrepreneurship. Our approach to institutional theory builds on Williamson (2000) and Estrin et al. (2012), and distinguishes between formal institutions at the constitutional and regulatory level. This allows us to extend the theory of institutional voids in arguing that strong regulatory institutions will have a weaker effect on social than commercial entrepreneurship, while strong institutions at the constitutional level will be supportive of both forms of entrepreneurship.

We develop a cross-level model hypothesizing nation-level influences on individual entrepreneurial decisions, which we test by constructing a large cross-national data set,

consisting of population representative surveys from the Global Entrepreneurship Monitor (GEM) combined with data on institutions. We employ multi-level modelling to test our hypotheses and therefore respond to Payne, Moore, Griffis and Aurty's (2011) call for multilevel work on social capital and entrepreneurship. We document the existence of reinforcing dynamics between the two forms of entrepreneurship in which we emphasise the role of social capital.

THEORETICAL FRAMEWORK

Definition of Social and Commercial Entrepreneurship

We adopt the definition of entrepreneurship as “new entry”: the efforts towards the creation of viable business resulting from an individual's occupational choice to work for his/her own account (e.g., Gartner, 1989; Hebert & Link, 1982). Commercial entrepreneurs rely on market exchange and have the objective to maximise profits while social entrepreneurs supply needs that are not addressed by for-profit ventures (McMullen, 2011). Practitioners and researchers increasingly acknowledge the potential of entrepreneurship to create “social wealth” (Zahra, Gedajlovic, Neubaum & Shulman, 2009).² Commercial and social entrepreneurs are therefore distinguished by their primary objectives (profits and social wealth respectively); they also have much in common, such as the central role of innovation, the necessity to bear risk and to invest.

² Zahra et al. (2009) propose three different types of social entrepreneurs: social bricoleurs, social constructionists and social engineers. Social bricoleurs are acting locally, responding to locally discovered opportunities with locally available resources. Many social entrepreneurs will start as social bricoleurs. Some may go on to realize that a specific need is more widespread and their solution is scalable and create organisations with a wider scope (becoming social constructionists), or challenge the wider institutional structures (becoming social engineers).

Social Entrepreneurship and Constructible Social Capital

To date, there is only limited theorizing about social capital at the national level. At the individual and group level, social capital is typically referred to as the ability to access resources through social relationships (e.g., Payne et al., 2011). Two types of social capital are commonly differentiated. First, bonding/strong-tie social capital refers to the cohesion within small groups. However, enhancing cooperation within a smaller group can come at the cost of restricting individual freedom, the exclusion of outsiders, or even hostility towards them (Portes, 1998; Portes & Landolt, 2000). Second, bridging/weak-tie social capital enables contact and collaboration among members of diverse and previously unconnected groups. This form is particularly applicable to the national level where social capital comes with positive externalities that relate to aspects that could be alternatively labelled as weak ties (Granovetter, 1973), bridging (Adler & Kwon, 2002), wide radius of trust (Fukuyama, 2001) or bonds of solidarity within a given community/nation (Portes & Landolt, 2000). With a growing “radius of trust”, more external effects are being internalised, strangers are no longer seen as outsiders and societal norms of cooperation emerge (Fukuyama, 2001; Putnam, 2000; Stephan & Uhlaner, 2010; Westlund & Adams, 2010).

The presence of far reaching weak ties within a nation lowers transaction costs by facilitating access to new and more valuable information and other resources. It also enhances mobility and can mitigate social exclusion, enabling more individuals to access new opportunities and resources. Widespread weak tie social capital within a nation can therefore support entrepreneurship (Kwon & Arenius, 2010; Stephan & Uhlaner, 2010).

Because social capital at the national level is seen as “endowed”, rooted in stable cultural traits (Adler & Kwon, 2002, Westlund & Adams, 2010), it is usually viewed as irrelevant from a

policy perspective (Portes, 1998; Fukuyama, 2001). However, social entrepreneurship, by supporting societal objectives and group needs, builds cooperation and goodwill and hence social entrepreneurs' actions and the enterprises they create enhance cooperative norms within a nation. Thus, social entrepreneurship offers a view on nation-level social capital which is constructible and growing through use.

Social entrepreneurship can generate these positive spillover effects because it reflects a bottom-up social self-organisation that aims to benefit others. It provides positive signals about caring for others, and examples of goodwill and cooperation. Moreover, the organizations that social entrepreneurs create are often built to overcome social exclusion and to enhance market participation by those in society who are underprivileged. Thus, they create new ties, often at the cost of breaking existing social barriers (Mair & Marti, 2009, Mair et al., 2012). Addressing social problems which are multi-faceted, social entrepreneurs build collaborative relationships with a wide range of stakeholders thereby cutting across and bridging diverse groups (e.g., DiDomenico, Haugh & Tracey, 2010; Peredo & Chrisman, 2006).

It is this outreaching aspect, widening Fukuyama's (2001) 'radius of trust', that may make social entrepreneurship a factor in building ties based on the nationwide community rather than local social segmentation. Mair and Marti (2009) view social entrepreneurship as closely related to institutional entrepreneurship; an argument we extend by stressing that the informal institutions built by the 'social bricoleurs' (Zahra et al., 2009) have a strong component of social capital, creating positive externalities. Through repeated examples of other-regarding exchanges that bridge diverse groups of stakeholders, social entrepreneurs enhance cooperative norms and construct social capital that can be appropriated by commercial entrepreneurs.

Prior research on nation-level social capital has emphasized participation in voluntary associations, arguing that it increases the trust between participating members (e.g. Putnam,

1993). However, such organisations can become embedded in the social and political establishment and thereby adopt para-state characteristics that have little to do with building societal norms of cooperation (see Olson, 1982). In contrast, an organisation with social objectives, created from below, can generate cooperative norms that transcend its organisational boundaries. This resonates with research by Krishna (2007) who finds cooperative norms to be linked to self-initiated community-based organisations. Thus, social entrepreneurship based on social self-organisation reflects a different ‘quality’ of constructible social capital³.

As a source of social capital, social entrepreneurship may have important benefits for commercial entrepreneurs. Cooperative norms indicated by the prevalence of social entrepreneurship can lower transaction cost and thus can make it easier for commercial entrepreneurs to access new information and resources as well as to identify new opportunities (Kwon & Arenius, 2010; Stephan & Uhlaner, 2010). Hence we propose:

H1: The likelihood that individuals in a country undertake commercial entrepreneurial activity is positively influenced by the national prevalence rate of social entrepreneurship in that country.

Formal Institutions and Entrepreneurial Activity

Institutions are the “humanly devised constraints that structure political, economic and social interaction.” (North, 1991, p.97), shaping the national framework within which individuals choose commercial and social entrepreneurship (Baumol, 1990; Baker, Gedajlovic and & Lubatkin, 2005). To date, entrepreneurship theory has been largely concerned with institutions influencing the former rather than the latter. Here we focus on the formal institutions that

³ In this, our theoretical perspective combines positive aspects of social capital, with Olson’s emphasis on beneficial effects of innovation and change in social structures (Olson, 1982).

facilitate social entrepreneurship, which helps us to shed further light on the origins of social capital rooted in institutions open to change by policy makers.

To consider formal institutions, we draw on Williamson's (2000) hierarchy of institutions framework⁴ but follow Estrin et al's (2012) distinction between the constitutional and the regulatory levels, which corresponds to what Ostrom (1994) labels 'constitutional choice' and 'collective choice'. Thus, Estrin et al. (2012) synthesize formal institutions into two dimensions, representing (1) the higher order (constitutional) features and (2) lower order regulations and policies. These relate to (1) the rule of law, secure property rights, and effective constraints on the arbitrary power of the executive branch of the government, seen as a closely related cluster of constitutional characteristics, and (2) the scale and scope of the government covering an interrelated cluster of collective choice features that include the size of government spending, the scope of the welfare system, the level of taxation and the extent of regulation. They find both to be related to commercial entrepreneurship.

The *constitutional level* of the institutional framework defines the security of property rights. Acemoglu and Johnson (2005) argue that effective constraints on arbitrary action by the executive branch of the government decrease the risk of expropriation. Strong property rights promote commercial entrepreneurial entry by fostering individuals' agency beliefs (Harper, 2003), enabling predictable and fair exchange and permitting the appropriation of the economic value created. But individual agency lies at the heart of all entrepreneurship, so social as well as commercial entrepreneurship are hampered by lack of predictability or even intimidation by those in power. Hence strong constitutional level institutions will be conducive to both forms of entrepreneurship. Indeed, arbitrary government may work strongly against social initiatives, and

⁴ In an alternative approach, Carney, Gedajlovic, Heugens, van Essen, and Oosterhout (2012) distinguish between protective and input-providing market-supporting institutions.

may apply official means of violence to pursue powerful private interests. Evans (1996) provides multiple examples from Latin America and Africa that weak rule of law and centralised and arbitrary government are detrimental to local self-organisation. Moreover, barriers created by weak institutional environments may generate self-fulfilling prophecies: those excluded in their access to institutionalized markets due to weak rule of law tend also to scale down their aspirations (Banerjee & Duflo, 2011). Accordingly, we posit:

H2: The likelihood that individuals in a country undertake a) commercial and b) social entrepreneurial activity is positively influenced by effective constraints on the arbitrary power of the government in that country.

Estrin et al. (2012) propose *regulations and policies* as the second dimension of formal institutions determining commercial entrepreneurship (also Fogel, Hawk, Morck & Yeung, 2006) operationalized as the scale of government activity in the national economy, and associated with lower prevalence of commercial entrepreneurship (also Van Stel, Storey & Thurik, 2007; Nissan, Castaño & Carrasco, 2012). Government activity crowds out private commercial initiatives through the effects of tax and welfare payments on incentives to work and invest, which are felt especially keenly in the area of individual agency. Taxes and welfare provision affect entrepreneurial entry via their impact on expected (lower) returns to commercial entrepreneurial activity and its opportunity cost (Parker, 2009). Higher levels of welfare support provide alternative sources of income and may reduce the incentives for individuals to choose commercial entrepreneurship over employment.⁵

These arguments are equally relevant for social entrepreneurs who also choose self-employment over alternative occupations. However, the impact may be less demotivating

⁵ Government revenues could be used to support entrepreneurship, ameliorating the relationship. The observed empirical relationship relates to middle and high income countries, and could become hump-shaped if the full spectrum of government spending was available for testing.

because social entrepreneurs have objectives in addition to personal enrichment and hence may be less affected by fiscal incentives. Moreover, institutional void theory (Dacin et al., 2010; Mair & Marti, 2009) suggests that there will be more need for social enterprises when the government is small, in order to substitute for missing social provision. The theory argues that deficiencies in the provision of social goods, for example at low levels of economic development, leads to demand for social entrepreneurial activity (see also Baker et al., 2005). Thus, a smaller government may create a demand for social entrepreneurship as individuals react to the social needs they see around them⁶. We therefore propose that the association between *government activism* and both commercial and social entrepreneurship will be negative though the disincentive effects will be felt more keenly by commercial entrepreneurs.

H3: The likelihood that individuals undertake (a) commercial and (b) social entrepreneurial activity is negatively influenced by government activism. (c) However, the negative effect will be more marked for commercial than for social entrepreneurship.

Figure 1 summarizes the three hypotheses in our multi-level model, which is a mixed determinant cross-level model (cf. Kozlowski & Klein, 2000; Payne et al., 2011). It contains cross-level predictions (country to individual level) formulated in H1 through H3 as well as individual-level control variables.

{Figure 1}

⁶ Social initiatives and government may have complementary effects (Evans, 1996; Woolcock & Narayan, 2000) if social enterprises partner with government. Our focus is on the effects of government size on entry; complementary effects are more relevant when social entrepreneurs become established.

EMPIRICAL DESIGN AND METHODS

Datasets

To test our hypotheses, our dataset should contain information on individual occupational choices between employment, social entrepreneurship and commercial entrepreneurship, and cover a large variety of countries with respect to institutions. We therefore merge a unique dataset on social entrepreneurship (covering more than 114,000 individuals in 47 countries in 2009) collected by the Global Entrepreneurship Monitor (GEM), with a variety of national-level institutional indicators and controls.

GEM is one of only two available international comparative datasets on entrepreneurship; the other is World Bank 'Entrepreneurship Survey'. Acs, Desai and Klapper (2008) compare them, showing how differences can be attributed to the fact that World Bank data focuses on registered companies only, while GEM captures all entrepreneurial activity. GEM thus matches our theoretical framework in that we concentrate on individual occupational choice, without focusing on the issue of registration⁷.

We utilize the GEM 2009 adult population survey, which has social entrepreneurship as its special theme and contains questions uniquely constructed to address our theoretical concerns. The survey instrument was developed via earlier pilot studies on social entrepreneurship⁸ and its questions were anchored in the social entrepreneurship literature (see Lepoutre et al., 2011). With very few exceptions, the data for each country consist of representative samples of at least 2,000 individuals drawn from the working age population, which avoids the potential selectivity

⁷ GEM started in 1998, with cross-national comparative data from 2001 (Reynolds, Bosma, Autio, Hunt, De Bono, Servais, Lopez-Garcia & Chin, 2005). Publications were initially descriptive, but more recently, have started appearing in leading scholarly journals.

⁸ Implemented by the UK team (e.g., Harding & Cowling, 2004; Harding, 2006; Levie et al., 2006).

bias of studies of existing entrepreneurs⁹. Taking account of missing values, we use 114,341 observations from 47 countries.¹⁰

Our methodology also mitigates the impact of one of the most widespread criticisms of GEM: the use of single-item questions and dichotomous yes/no answer categories. This is challenging if potentially ambiguous, attitudinal and perceptual constructs are measured, but less problematic when directly observable behaviours such as starting/owner-managing a social enterprise or commercial business are captured (e.g. Bergvist & Rossiter, 2007).

Sample, Measures and Modelling Strategy

Dependent Variables: Social and Commercial Entrepreneurship. The GEM methodology is designed to capture a wide range of business creation activities (Reynolds et al., 2005), distinguishing between:

- (1) individuals who intend to create a new venture,
- (2) those in the process of establishing a new firm (start-ups, or nascent entrepreneurs),
- (3) those operating young firms (under 3.5 years), and
- (4) owners-managers of established businesses (3.5 years and older).

These four activities were identified separately for commercial and for social entrepreneurship, so some respondents could be active in more than one category (Bosma et al., 2010; Lepoutre et al., 2011). Our two dependent variables are the individual likelihood of commercial and social entrepreneurial entry respectively (category (2) above), i.e. start-up or

⁹ GEM surveys were completed through phone calls, or face-to-face interviews where low telephone density could create a bias.

¹⁰ Algeria, Argentina, Belgium, Brazil, Chile, China, Colombia, Croatia, Denmark, Dominican Republic, Ecuador, Finland, France, Germany, Greece, Guatemala, Hungary, Iran, Israel, Italy, Jamaica, Jordan, Korea, Latvia, Lebanon, Malaysia, Morocco, Netherlands, Norway, Panama, Peru, Romania, Russia, Saudi Arabia, Slovenia, South Africa, Spain, Switzerland, Syria, Tunisia, Uganda, UK, United Arab Emirates, United States, Uruguay, Venezuela, Yemen.

nascent activity. We leave entrepreneurial intentions aside (i.e. category (1)) and include jointly (3) and (4) as existing social and commercial entrepreneurs respectively in our set of independent variables.

To be classified as *starting-up (nascent) commercial entrepreneurs*, respondents answered affirmative that: a) they are alone or with others currently trying to start a new business, b) they have actively taken action to start the new business over the past 12 months¹¹ and c) they will at least part-own this business. They are classified as young or established entrepreneurs if their business has paid salaries, wages or in kind for at least three months. Respondents were asked a corresponding set of questions about starting and owner-managing “any kind of activity, organization or initiative that has a particularly social, environmental or community objective” to be identified as *social entrepreneurs* (see: Mair & Marti, 2006; Zahra et al., 2009).

Measuring entrepreneurial activity by start-ups carries the risk that the start-up will not survive, but it has still been popular in empirical research for two reasons. First, the newness of a start-up activity reflects a key aspect of entrepreneurship (Zahra & Wright, 2011). Second, in the context of building a formal estimable model, the focus on nascent entrepreneurial activity alleviates endogeneity problems that are difficult to overcome in the context of cross-sectional data. For example, some individual characteristics, including attitudes and resources, may not be exogenous for business owners who have already run their own ventures for some time. More importantly, we can use the distinction between nascent and existing businesses to alleviate the simultaneity suggested by Figure 1.

¹¹ The exact wording is: a) You are, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others, b) Over the past twelve months have you done anything to help start a new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activity that would help launch a business?, c) Will you personally own all, part, or none of this business?, and for identification of young/established business owner-managers: d) Has the new business paid any salaries, wages, or payments in kind, including your own, for more than three months?

Country-Level Predictors (H1, H2, H3). To test for H1, we use the *country prevalence rate of young and established social entrepreneurs* as our indicator of entrepreneurship social capital; an informal national institution¹².

Hypotheses 2 and 3 require us to specify the appropriate measures of formal institutions across countries. For the quality of property rights (H2), we use the Polity IV indicator of efficient constraints on the arbitrary power of the executive branch of the government, “*constraints on executive*” (Estrin et al., 2012)¹³. Government activism (H3) is measured by the scale of government activity: the *size of the government*. We use Heritage Foundation data; their own indicator is the quadratic transformation of the ratio of government expense to GDP. We follow Reynolds (2010) and transform this back to the simple ratio of government expense to GDP. Though we argued that a larger government correlates with a more extensive welfare system, we are unable to find a direct measure of the latter with sufficient coverage. However, correlations of welfare spending indicators with our variable “size of government” support our argument. For instance, the size of government correlates $r = .87, p < .001$ ($N=32$) with the per cent of GDP spend on total public social protection and health care (OECD, 2011); $r = .75, p < .001$ ($N=50$) with expenditure on health as per cent of GDP (UNDP, 2011); and $r = .58, p < .001$ ($N=33$) with expenditure on education as per cent of GDP (UNDP, 2011).

In terms of multi-level theory our formal institutional variables (constraints on the executive and government activism) are country-level concepts with so-called global unit properties, while our indicator of social capital (the country prevalence rate of social

¹² This measure excludes nascent social entrepreneurship to alleviate simultaneity bias with our dependent variable.

¹³ Many scholars have relied on the Heritage Foundation–Wall Street Journal measure of property rights. Aidis et al. (2012) argue that this integrates two dimensions of property rights, namely protection from arbitrary government and protection of private contracts. Given our theoretical framework, we follow Acemoglu and Johnson (2005) in believing the protection from arbitrary government to be more fundamental.

entrepreneurs) is a concept following a compilation process of emergence and is characterized by descriptive configural unit properties (Kozlowski & Klein, 2000; Payne et al., 2011). Unlike the more common consensus-based emergent multi-level concepts, our social capital indicator describes a configuration, i.e. the share of social entrepreneurs among each country's population.

Country-level Control Variables. Rates of entrepreneurship vary with levels of development (Lepoutre et al., 2011). We follow Aidis et al. (2012) and Autio and Acs (2010) in controlling for this by using *per capita GDP* at purchasing power parity;¹⁴ we also include the *growth rate of GDP*.

While we focus on the nation-level stock of social entrepreneurship as one indicator for social capital, for robustness we explore how the relationships are affected by including in the entrepreneurship equations the two most widely used measures of nation-level social capital (Kwon & Arenius, 2010; Westlund & Adam 2010): *generalized trust* and *associational membership* (see Table 1 for details). In addition, we follow Audretsch and Keilbach (2004) in controlling for the *stock of commercial entrepreneurs*, using the country prevalence rate of young and established commercial entrepreneurs. We lag all macroeconomic and institutional variables by one year to reduce potential endogeneity between these variables and social and commercial entrepreneurship.

Individual-Level Control Variables. We also follow the literature on other controls. Thus we include a dummy variable for the owner-manager of a young or established commercial or social enterprise as one proxy for *experience*. We also include a dummy variable for *gender* and two variables to test for the effect of *education*: secondary and tertiary education respectively.

¹⁴ Following Wennekers, van Stel, Thurik & Reynolds (2005), we also experimented with its square term to control for possible U-shaped effects of GDP on entrepreneurship. This was not significant.

We further include (as, e.g., Autio & Acs, 2010; Aidis et al. 2012) a measure of *access to capital*, of *knowing an entrepreneur*, *age* and *current employment status* .

Definitons and data sources are summarized in Table 1. The individual-level correlation matrix is presented in Table 2 and national-level correlations are presented in Table 3.

{Table 1, Table 2, Table 3}

Estimation

We use multilevel modelling on our cross-country, cross-individual dataset because it has a hierarchical structure in which individuals represent level one and countries represent level two. Individuals are not randomly distributed across countries; rather individuals living in the same country share some experiences that are different from individuals living in another; hence individuals from the same country are more likely to exhibit similar patterns in their behaviour. In terms of regression models observations are no longer independent, i.e. part of the error associated with estimating individuals' propensity to engage in entrepreneurship is systematically influenced by country factors. OLS regression models are not robust to non-independence of errors terms and standard error estimates are biased so the significance levels of OLS regression coefficients are unreliable (e.g. Bliese, 2002; Ployhart, Holtz & Bliese, 2002; Rabe-Hesketh, Skrondal & Pickles, 2005). Multi-level modelling take this into account.

We examined whether the use of multilevel modelling is supported statistically. First, we tested the significance of country effects (random intercepts). We found evidence for significant country-level variance (at $p < 0.001$) in addition to individual-level variance. The residual interclass correlation (ICC1) indicated that 14% of the variation in commercial start-up and 19% in the variation of social start-up resides at the country-level (compared to the individual-level).

Next, we included the country-level averages of all individual effects, which reduced the residual interclass correlation to 5% for commercial start-up, and to 8% for social start-up. In both cases we performed a likelihood ratio (LR) test to compare both types of specifications. These suggested that adding the country-level averages significantly reduced the unexplained country-level variance in both commercial and social start-up (at $p < 0.001$). Third, we added our macro level variables representing formal institutions, GDP per capita and GDP growth. For commercial start-up, this further reduced residual interclass correlation to 3%, and the corresponding LR test was significant again at $p < 0.001$. However, adding formal institutions and GDP had little impact on social start-up: residual interclass correlation was reduced by less than 1% and the LR test was insignificant. Nevertheless, because they did not affect other results, in models reported below we retain those variables for the sake of comparison.

Our estimating equations are specified to include individual effects (subscript i), and country averages (subscript j below). For instance, coefficient β_{8j} for $InEmployment_{ij}$ represents an individual effect of being in employment, and coefficient γ_{08} for $InEmployment_j$ represents a country effect of the employment prevalence rate. Our full regression model (corresponding to specification (1a) and (1b) in Table 4 below) is therefore specified in two-parts following the notation in Bliese (2002)¹⁵:

$$Startup_{ij} = \beta_{0j} + \beta_{1j}(CurrComE_{ij}) + \beta_{2j}(CurrSocE_{ij}) + \beta_{3j}(Female_{ij}) + \beta_{4j}(EducSecpost_{ij}) + \beta_{5j}(EducPost_{ij}) + \beta_{6j}(Age_{ij}) + \beta_{7j}(AgeSq_{ij}) + \beta_{8j}(InEmployment_{ij}) + \beta_{9j}(BusAngel_{ij}) + \beta_{10j}(KnowsEntrep_{ij}) + r_{ij} \quad (1)$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(CurrComE_j) + \gamma_{02}(CurrSocE_j) + \gamma_{03}(Female_j) + \gamma_{04}(EducSecpost_j) + \gamma_{05}(EducPost_j) + \gamma_{06}(Age_j) + \gamma_{07}(AgeSq_j) + \gamma_{08}(InEmployment_j) + \gamma_{09}(BusAngel_j) + \gamma_{10}(KnowsEntrep_j) + \gamma_{11}(l.ExecConstr_j) + \gamma_{12}(l.GovSize_j) + \gamma_{13}(l.GDPpc_j) + \gamma_{14}(l.GDPgrowth_j) + u_{0j} \quad (2)$$

$Startup_{ij}$ is our measure of entrepreneurial activity, used in models 1a through 5a for commercial entrepreneurs and in models 1b through 5b for social entrepreneurs. All our models have a

¹⁵ We are assuming that the slopes of individual-level effects on individual start-up choice are similar across countries.

similar structure. In equation (1), the individual engagement in start-up is a function of the country group intercept (β_{0j}) and a linear component of individual-level control variables (e.g., currently running and owning a commercial enterprise $CurrComE_{ij}$) plus some random error (r_{ij}). Equation (2) specifies the group intercept (β_{0j}) as a function of a common intercept (γ_{00}) and a linear component made up of the country-level average of all individual-level control variables (e.g., the country prevalence rate of commercial entrepreneurship $CurrComE_j$), or their country effects, as discussed above, as well as our formal institution predictor variables, GDP and GDP growth plus a random, country-level error term (u_{0j}). The country prevalence rate of social entrepreneurship ($CurrSocE_j$), is our indicator of country-level social capital.

We conducted additional Wald tests to establish whether the individual-level effects are different from the country-mean effects for each variable which are included both as an individual-level and a country-level aggregate in the equation (e.g. age, gender), based on specifications (1a) and (1b) in Table 4. Where this test result was not significant in both the social and commercial start-up equation, we removed the country-mean effect. This was the case for the country-means of gender (y_{03} ($Female_j$)), employment status (y_{08} ($InEmployment_j$)), and knowing an entrepreneur (y_{10} ($KnowsEntrep_j$)) resulting in specifications 2a and 2b in Table 4. In specifications 3a and 3b we additionally removed country means where these effects were not significantly different from the corresponding individual effects in a given single equation.

Tables 2 and 3 do not suggest problems of multicollinearity. Nonetheless, erring on the side of caution, we performed a battery of detailed tests, running regression models based on all sets of our explanatory variables, taking each explanatory variable as a dependent in turn¹⁶. This allowed us to identify a number of potential multicollinearity problems concerning the country mean variables. We then faced the following dilemma: while including country mean effects for

¹⁶ These could also be identified empirically by measures such as variance inflation factors (VIF). We prefer our approach, because VIF do not tell us what in the underlying partial correlation structure is causing the problems.

all variables is recommended based on the LR test results reported above, a few of these are also a source of multicollinearity, specifically partial correlations between the age variables and executive constraints are high. Thus multicollinearity marginally reduces the significance of executive constraints, because countries with a higher average age have also stronger institutions. However, bearing in mind the potential for attenuation bias, we based our specification choice on the LR test and kept the corresponding variables in our models. We also verified if mean-centring all continuous variables alleviates the multicollinearity problem, in particular that we use both age and age squared. In fact the results were only altered in the range of second and third decimal points and significance levels were virtually the same in all cases.

Finally, to control for interdependencies and cross-correlations when predicting commercial and social start-up, we estimate these two jointly using MLwiN software. We report results from bivariate, multi-level logit regressions with odds ratios and their standard errors.

RESULTS

In Tables 4 and 5 (models 1 through 6), all models "a" relate to estimations for commercial start-up and models "b" are estimations for social start-up. We present two sets of estimations; the first set are our core results (Table 4, models 1 through 3); in models (2) and (3) we drop country-mean effects where those were not distinguished from individual effects, as discussed above. The second set of estimations (Table 5, models 4 and 5) are robustness checks adding the two standard country-level measures of social capital discussed above.

Country-level Social Entrepreneurship as Constructible Nation-Level Social Capital (H1)

We find strong support for H1: The country-level prevalence rate of social entrepreneurs has a significant positive effect on the likelihood of individuals becoming commercial entrepreneurs (Table 4, models 1a, 2a, and 3a).

Country-level Formal Institutions as Predictors of Entrepreneurship (H2, H3)

We also find support for H2a and b. Constraints on the executive have the expected positive effect on the likelihood of social start-up once we remove some sources of collinearity based on the Wald tests described above, i.e. redundant county-level effects of individual variables (Table 4, models 2b and 3b, row 21). This holds even if we keep the country mean age variables that are also collinear. Constraints on the executive are significantly positively associated with commercial start-up (Table 4, models 1a through 3a row 21) and the coefficient difference Wald test yields a non-significant difference (Chi-square ($df=1$) = 0.00, n.s.) indicating that social and commercial start-up are equally influenced by the quality of the institutional framework.

A similar pattern of results emerges regarding H3. Once we remove sources of collinearity, government size has the predicted negative effect on social (Table 4, models 2b and 3b, row 22) and commercial start-up supporting H3a and H3b. The coefficient difference Wald test reveals a marginally stronger negative effect of government size on commercial compared to social start-up (Chi-square ($df=1$) = 2.86, $p < .10$) supporting H3c.

Individual-level Controls

We find that being the owner of a young or established social enterprise is positively associated with the likelihood of commercial start-up (Table 4, models 1a through 3a, row 1) as well as with starting another social enterprise (Models 1b through 3b, row 1). Individuals who are young or established commercial entrepreneurs are less likely to start another commercial enterprise (Table 4, Models 1a through 3a, row 3), but there is no significant association with social start-up (Models 1b through 3b, row 3).

Furthermore, women are less likely than men to become either social or commercial entrepreneurs (Table 4, model 1 through 3, row 5) but more likely to be social as compared to commercial entrepreneurs (Wald test, Chi-square ($df=1$) = 25.19, $p<.001$). Similarly, secondary and tertiary education are positively related to commercial and social start-up (Table 4, row 7 and 9) but tertiary education has a stronger effect on social start-up (Chi-square ($df=1$) = 7.12, $p<.01$, in contrast Chi-square ($df=1$) = 1.30, n.s. for secondary education)¹⁷.

Further Results at the Country-level

The country-level rate of young and established commercial entrepreneurship has a negative effect on individual social start-up (Table 4, Models 1b-3b, row 4). Thus, while we find the expected positive effect of country-level social entrepreneurship on commercial start-up (H1), the reverse does not hold; individuals are less likely to become social entrepreneurs in countries with high average rates of commercial entrepreneurship. We find that GDP per capita has a similarly strong negative effect on both commercial and social entry (Table 4, row 23).

Table 5 reports equations that add the two standard measures of social capital, membership in associations and generalised trust, as determinants of start-up. We continue to find a positive effect of country-level social entrepreneurship on commercial start-up when one of the measures, associational membership, is introduced (Table 5, model 5a), but not from the other, generalized trust (model 4a). Note however, that adding these new variables comes at a cost of restricting the sample from 47 countries to 39 (in model 5a) and 36 countries (in model 5b). Hence these results rely on more limited variation and need to be treated with caution.

¹⁷ Greater access to capital (business angel) and knowing an entrepreneur are each positively related to both commercial and social start-up (Table 4, rows 17 and 19). In both cases the relationship is stronger for commercial than for social (Chi-square ($df=1$) = 23.06, $p<.001$ and 7.89, $p<.01$ respectively). Individuals in employment are more likely to undertake commercial start-up (Table 4, row 15), but there is no significant association with social start-up. Finally, the age of the individual shows the conventional inverted U-shaped relationship for both types of entrepreneurship (Table 4, rows 11 and 13).

DISCUSSION

Our research contributes to the theory of social capital and entrepreneurship in three ways. First we propose an emergent, bottom-up process of social capital creation and link it to positive spillovers from nation-level rate of social entrepreneurship to individual commercial entrepreneurship. Second, we highlight institutional antecedents of social capital generating social entrepreneurship, thereby shedding light on the roots of change in social structures – and adding new insights to social capital theory. Third, we put forward a contextualized understanding of entrepreneurship as embedded in social capital, national formal institutions as well as being influenced by individual characteristics and behaviour.

Constructible Social Capital: Consequences of Social for Commercial Entrepreneurship

We find support for the argument that a higher national rate of social entrepreneurship increases the likelihood that individuals in that country become commercial entrepreneurs. Our research therefore contributes a fresh perspective on social capital, providing an indicator of country-level constructible social capital, which is conceptually aligned with the dominant definition of nation-level social capital as cooperative norms, and which captures the beneficial aspects of change in social structures created from below (Krishna, 2007; Peredo & Chrisman, 2006). To conceptualize our novel indicator of social capital we followed Payne et al.'s (2011) call for a multilevel perspective on social capital. In particular, we drew on multi-level theorizing, distinguishing the individual-level engagement in social enterprise from the country-level variable; the national rate of social entrepreneurship. The latter has a wider meaning in that it serves as an indicator for important social processes related to social capital (see Bliese, Chan & Ployhart, 2007). Drawing on existing research we theorized about the emergent process of social capital building through social entrepreneurship, particularly the role of repeated other-

regarding exchanges, signalling effects and the building of collaborative relationships and new ties across social groups, as well as its specific appropriability for commercial entrepreneurship.

Future research should include direct measures of these generative processes.

Our novel indicator of social capital complements existing country-level measures including generalized trust and associational membership (e.g., Kwon & Arenius, 2010; Westlund & Adams, 2010). In fact, these two established indicators of social capital show little relationship with commercial entrepreneurship. This supports our argument highlighting the importance of constructible, self-organisation facets of social capital appropriable by commercial entrepreneurs. However, the substantial positive country-level correlation of social entrepreneurship rate and generalized trust (Table 3) suggests why the coefficient on social entrepreneurship prevalence rate is less significant if generalised trust is included in the model. It indicates a partial mediation effect (e.g. Zhao, Lynch & Chen, 2010) such that generalized trust supports social entrepreneurship, which in turn influences individual commercial entry. In addition, the national rate of social entrepreneurship is more closely correlated with generalized trust than with associational membership, which supports our proposition that social capital built by social entrepreneurship indicates the existence of cooperative norms of which generalized trust is arguably another, albeit static and stable, indicator (Fukuyama, 2001). Furthermore, there is no significant effect of associational membership on individual-level social entry, as would be expected if new social enterprises were spin-outs of larger social organisations – similar to new commercial enterprises being spun-out by existing firms (Thornton, 1999). Our findings indicate that social entrepreneurs originate elsewhere.

The positive impact of social on individual commercial entrepreneurship via social capital may be contrasted with the negative effect of the country-level rate of commercial entrepreneurship on individual social entry. High national rates of commercial entrepreneurship

reduce the opportunities available for social entrepreneurs. Unlike commercial entrepreneurs, social entrepreneurs may address activities not yet well framed by markets but open them up for commercial exploitation once new organisational forms and business solutions have been developed (e.g., Mair et al., 2012; McMullen, 2011).

Our findings on formal institutions shed light on the micro-foundations of social capital creation. We find a strong rule of law that facilitates exchange and supports agency to have a positive effect on social entry and thereby, over time, helps to create the informal national institution of social capital. This extends social capital research by adding novel insights about which institutions may facilitate its creation. Previous research has instead concentrated on debating the state's role in creating social capital (e.g., Evans, 1996; Woolcock & Narayan, 2000). Our research also alludes to the broader question how constraints and opportunities originating from formal institutions can shape informal institutions. Here, we broaden the Williamson's (2000) framework; the latter suggests that linkages only relate to the impact of informal on formal institutions.

Formal Institutions, Institutional Voids and Entrepreneurial Activity

We find that entrepreneurship is more likely to thrive in institutional contexts with a strong rule of law. This is consistent with the notion that all entrepreneurial activity – commercial or social - benefits from the predictability, and the level playing field offered by non-arbitrary government and sound, independent law. While some social entrepreneurs may achieve extraordinary results in dysfunctional institutional contexts (e.g. Yunus, 1998), such a route to social entrepreneurship may not always be an option.

With regard to the second aspect of formal institutions – government activism - we find support for the predicted negative effect of government size on social entrepreneurship, thereby

extending Estrin et al.'s (2012) findings. However, while the disincentive effects of a more active government sector demotivate both commercial and social entrepreneurs, the crowding out is weaker for social entrepreneurs.

Our results therefore provide a more differentiated understanding of institutional void theory, based on our distinction between two dimensions of formal institutions; constitutional-level institutional quality and government activism. We show that social entrepreneurship thrives in countries with *strong institutional quality*. This is not inconsistent with the possibility that social entrepreneurs can have an enormous impact on their environment in less developed economies; Zahra et al.'s (2009) examples of Social Engineers are mainly from the developing world. At the same time, our results on government activism are consistent with the institutional void perspective in that the limited provision of government services creates demand for social self-organisation.

The Consequences of Social for Commercial Entrepreneurship at the Individual Level

Individual social entrepreneurs, in addition to being more likely to start another new social initiative, are also more likely to start up a commercial enterprise. Thus, it is probably not correct to conceptualise social and commercial entrepreneurship as being in competition for the efforts and resources of the individual entrepreneur. Rather social entrepreneurship is an empowering experience building skills and confidence, which can be used for further entrepreneurial activity, both social and commercial. Social entrepreneurship also seems to attract people who are not typical commercial entrepreneurs, notably women and the more highly educated. Combined with the positive dynamic between the two forms of entrepreneurship, the possibility is opened that social entrepreneurship could increase the diversity of those engaged in entrepreneurship in a nation. These issues merit more careful research in the future.

Strengths and Limitations

The literature discusses social capital in a variety of forms and channels. We concentrate on the societal level and within that, on weak-tie social capital represented by norms supporting cooperation. There may be research potential to explore further links between social capital and social entrepreneurship, for example at the individual level concerning local strong and weak ties, since these are not addressed in our study.

One strength of our study is that we can draw on population representative samples across a wide range of countries, which enables us to apply multi-level modelling. Multi-level modelling allows us to test individual-level relationships at the same time as cross-level country-effects. It also overcomes concerns about biased significance levels in OLS regressions (e.g. Bliese, 2002).

At the same time, the GEM dataset limits us in the specificity of the results. In particular, Zahra et al. (2009) classify social entrepreneurs into three types and argue that behaviour will depend in part on these differences in motivation. However, GEM data is not able to distinguish between types of social entrepreneurs. There therefore remains a need for research to explore contextual variables influencing different social entrepreneur types. Although we have focussed on self-organisation, social enterprises might also be created from the outside, for instance through employees of international NGO's. This type of social enterprise is not represented in our data.

A further limitation of our dataset is its cross-sectional nature, which affects the tests of the consequences of social for commercial entrepreneurship. Some might argue that a common underlying and potentially unmeasured variable might be responsible for the spillover effects from social to commercial entrepreneurship. While this may be true, we drew on institutional

economics and comparative entrepreneurship research to ensure that we identify relevant variables and include them in our estimations. In addition, we ran bivariate multi-level logistic regressions instead of estimating separate models for social and commercial entrepreneurship. Such bivariate regressions take cross-correlations between equations into account which would occur in the case of unmeasured third variables. We have therefore taken care to account for potential alternative explanations through control variables and bivariate modelling and alleviated endogeneity by lagging our predictor variables and using stock measures as independent and current flow measures as dependent variables. Nonetheless longitudinal studies of this phenomenon are certainly desirable to shed more definite light on the causal relationships.

Another concern is that middle and high-income countries tend to be over-represented in our sample compared to low-income countries. Thus we may understate potential cross-country heterogeneity in institutions. It would also be helpful to explore in more detail the processes whereby social entrepreneurship builds social capital using both longitudinal data and case studies; there are likely mutually reinforcing relationships at play.

Policy and Practical Implications

The manner in which social entrepreneurship may bring different people into entrepreneurial activity combined with the supportive impact of social entrepreneurship on commercial entrepreneurship gives policy makers further reasons to provide support. Our results indicate that social entrepreneurship builds social capital, especially through cooperative norms; an informal institution. Policy makers could build on this insight by supporting the relationship-based exchange logic of social entrepreneurship through opportunities for social entrepreneurs to meet and network, and giving legitimacy to the causes they address (Korosec & Berman, 2006). Moreover, as exemplified by Banerjee and Duflo (2011), social norms are affected by media:

culture changes, even if at a slow pace, and it is important to consider which role models are promoted in the public sphere. For instance the media could provide social entrepreneurial role models in programmes similar to Dragon's Den or Shark Tank and beyond.

Since social entrepreneurship generates spillover effects, this calls for a more careful consideration of social capital in policy design focused on enhancing commercial entrepreneurship. Commercial entrepreneurship is a social as well as an economic activity and enabling social relations and propagating cooperative norms based on weak ties plays a critical role in boosting it. Our research also presents further reasons to support a strong rule of law, which we find to be important for stimulating all forms of entrepreneurship.

For entrepreneurship education, our research suggests that enhancing social entrepreneurship could be an important route to increase entrepreneurship among university graduates and women – both topics high on the policy agenda. Thus, universities offering courses and business incubators for commercial entrepreneurs should re-think to widen their offering to also encompass social entrepreneurship; this is already beginning, but there is need for more. Importantly, social entrepreneurship is in many ways more complex than commercial since it requires combining business models with an understanding of social change. Hence it requires different (societal) value creation logic, and specialist staff to train for these skills.

CONCLUSIONS

Our main contribution is to add to social capital research by conceptualizing and validating social entrepreneurship as an indicator of constructible social capital created from below. In doing so, we add a fresh perspective to existing research. First, our conceptualization closely aligns with the notion that nation-level social capital reflects cooperative norms (Fukuyama, 2001; Putnam, 2000). Second, it broadens the range of measures of social capital available for nation-level comparative research which has predominantly relied on generalized

trust and voluntary membership in associations, though the measurement of each is plagued with problems (e.g., van Deth, 2003; Westlund & Adams, 2010). Third, our emphasis on constructible social capital through self-organisation contrasts with previous comparative research regarding social capital as endowed; determined entirely by long-lasting social norms and cultural traits (Adler & Kwon, 2002; Westlund & Adams, 2010). Adding a new nation-level measure will allow future research to triangulate measurements and advance theorizing about different aspects of social capital. Fourth, we add new insights on the origins of social capital by highlighting institutional antecedents of social capital generating social entrepreneurship.

We also contribute to comparative entrepreneurship research a differentiated understanding of the influence of the institutional context. We identify the contextual variables which influence commercial and social entrepreneurship, distinguishing between formal and informal institutions, and stressing that social capital is at the core of the latter. We also apply a differentiation between constitutional quality and government activism to the institutional void perspective. We find evidence that the entrepreneurial process, independent of its goals, is facilitated by a strong rule of law, and argue that this is not inconsistent with the institutional void perspective; indeed we find evidence supporting the institutional void view with regard to social needs when governments are less active.

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Table 1: Descriptive statistics and definitions of explanatory and variables

Variable	Definition	Mean	S.D.
<i>Country-level explanatory variables: Business environment & Macroeconomic variables</i>			
Constraints on executive (t-1)	Polity IV 'Executive Constraints'; scores from 1="unlimited authority" to 7="executive parity"; higher value denotes less arbitrariness	6.14	1.59
Government spending	Government spending / GDP (authors' calculations, based on Heritage Foundation data)	36.55	9.43
Social entrepreneurship	Country prevalence rate of young and established social entrepreneur (percent of the adult population indicating that they are currently owner-managing a social enterprise)	.023	.022
Commercial entrepreneurship	Country prevalence rate of young and established commercial entrepreneurs (percent of the adult population indicating that they are currently owner-managing a commercial enterprise)	.114	.071
Generalized Trust	World Values Survey, percent survey participants responding "most people can be trusted" as opposed to "one cannot be too careful"	26.73	0.03
Associational membership	World Values Survey, percent survey participants reporting they are active or passive members or belong to an association, accumulated over all associations declared (so may result in more than 100%).	140.34	0.18
GDP per capita ppp (t-1)	GDP per capita at purchasing power parity, constant at 2000 \$USD (World Bank, World Development Indicators 2010)	23,291	12,401
GDP growth (t-1)	Real GDP growth rate (World Bank, World Development Indicators database 2010)	2.74	2.92
<i>Individual-level Explanatory Variables: Personal characteristics</i>			
Female	1=female, zero otherwise	.52	.09
Education: Secondary	1=respondent has a secondary or post-secondary education , 0 otherwise	.67	.47
Education: Post-secondary	1=respondent has a post-secondary education	.35	.48
Social entrepreneurship experience	1 = respondent is currently owner-managing a young or established social enterprise	.027	.163
Commercial entrepreneurship experience	1 = respondent is currently owner-managing a young or established commercial enterprise	.145	.352
Business angel in last 3 years	1=business angel in past three years, 0 otherwise ("Have you, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds?" Answering options: "yes" or "no")	.04	.20
Know an entrepreneur	1=respondent knows an entrepreneur, 0 otherwise ("Do you know someone personally who started a business in the past 2 years?". Answering options "yes" or "no".)	.37	.48
Age	Age of the respondent between 14 and 99 at time of interview	43	14
Being in employment	1=respondent is in full or part time employment, 0 otherwise	.61	.49
<i>Dependent variables:</i>			
Startup – commercial	1=respondent involved in commercial startup, zero otherwise	.052	.223
Startup – social	1=respondent involved in social startup, zero otherwise	.032	.175

Source: GEM 2009 unless specified otherwise. (t-1) indicates lagged variables

Table 2. Individual level correlations

	1	2	3	4	5	6	7	8	9	10	11
1 Commercial Entrepreneur start-up											
2 Social Entrepreneur start-up	0.040										
3 Commercial Entrepreneur young & established	-0.029	0.006									
4 Social Entrepreneur young & established	0.035	0.147	-0.010								
5 Female	-0.054	-0.025	-0.112	-0.019							
6 Education: secondary	0.029	0.048	-0.020	0.061	-0.036						
7 Education: post-secondary	0.004	0.023	-0.010	0.062	-0.031	0.512					
8 Age	-0.084	-0.052	0.013	0.017	0.021	-0.103	-0.003				
9 Age_squared	-0.085	-0.051	-0.008	0.013	0.018	-0.106	-0.017	0.983			
10 In employment	0.072	0.026	0.272	0.066	-0.197	0.171	0.167	-0.117	-0.180		
11 Business angel	0.085	0.043	0.083	0.044	-0.058	0.028	0.035	-0.030	-0.032	0.055	
12 Know entrepreneur	0.135	0.093	0.133	0.067	-0.116	0.082	0.062	-0.201	-0.205	0.127	0.159

Note: Tables 2 and 3 are based only on observations actually used in estimations (i.e. excluding the joint effect of missingness).

Table 3: Correlations in nation level variables

	1	2	3	4	5	6	7	8	9
1 National prevalence rate: Social entrepreneurial start-up									
2 National prevalence rate: Commercial entrepreneurial start-up	0,573								
3 National prevalence rate: Young and established social Entrepreneurs	0,302	0,074							
4 National prevalence rate: Young and established Commercial Entrepreneurs	-0,034	0,532	0,023						
5 Government spending (t-1)	-0,152	-0,570	0,315	-0,463					
6 Constraints on the Executive (t-1)	-0,283	-0,425	0,208	-0,369	0,479				
7 Trust	-0,009	-0,290	0,566	-0,117	0,326	0,039			
8 Associational membership	0,069	-0,082	0,428	-0,102	0,100	0,213	0,411		
9 GDP growth (t-1)	0,107	0,467	-0,186	0,435	-0,609	-0,502	-0,183	-0,233	
10 GDP (t-1)	-0,367	-0,722	0,036	-0,569	0,585	0,610	0,459	0,336	-0,629

Note: Tables 2 and 3 are based only on observations actually used in estimations (i.e. excluding the joint effect of missingness).

Table 4. Results of Logistic Multi-Level Bivariate Regression: Odds Ratios of individual-level and country-level Effects on Commercial and Social Entry

DEPENDENT	(1a)		(1b)		(2a)		(2b)		(3a)		(3b)	
	Commer.		Social		Commer.		Social		Commer.		Social	
	Start-up		Start-up		Start-up		Start-up		Start-up		Start-up	
1 Social E. young & established	1.31 *** (1.07)		6.19 *** (1.05)		1.31 *** (1.07)		6.20 *** (1.05)		1.31 *** (1.07)		6.20 *** (1.05)	
2 Social E. young & established – country mean	131.4 * (11.91)		20353.3 * (63.62)		204.2 * (11.54)		15108.3 * (52.98)		195.8 * (11.19)		11968.1 * (47.7)	
3 Commercial E. young & established	0.34 *** (1.05)		0.98 (1.05)		0.34 *** (1.05)		0.98 (1.05)		0.34 *** (1.05)		0.98 (1.05)	
4 Commercial E. young & established – country mean	3.19 (2.69)		0.01 ** (5.45)		4.37 (2.51)		0.01 ** (4.66)		4.36 (2.45)		0.01 *** (4.21)	
5 Female	0.72 *** (1.03)		0.90 ** (1.04)		0.72 *** (1.03)		0.90 ** (1.04)		0.72 *** (1.03)		0.90 ** (1.04)	
6 Female – country mean	4.08 (4.64)		2.63 (13.69)									
7 Education secondary or higher	1.25 *** (1.04)		1.34 *** (1.05)		1.24 *** (1.04)		1.34 *** (1.05)		1.24 *** (1.04)		1.34 *** (1.05)	
8 Education sec or higher - country mean	3.41 * (1.75)		18.17 ** (2.6)		4.33 ** (1.72)		22.58 *** (2.45)		4.08 ** (1.68)		19.22 *** (2.25)	
9 Education postsecondary	1.07 * (1.03)		1.23 *** (1.04)		1.07 * (1.03)		1.23 *** (1.04)		1.07 * (1.03)		1.23 *** (1.04)	
10 Education postsecondary - country mean	0.38 + (1.75)		0.67 (2.54)		0.33 * (1.73)		0.60 (2.42)		0.39 * (1.53)			
11 Age	1.05 *** (1.01)		1.03 *** (1.01)		1.05 *** (1.01)		1.03 *** (1.01)		1.05 *** (1.01)		1.03 *** (1.01)	
12 Age - country mean	0.58 *** (1.17)		0.55 * (1.31)		0.61 ** (1.16)		0.56 * (1.28)		0.61 *** (1.16)		0.56 * (1.27)	
13 Age squared	1.00 *** (1.00)		1.00 *** (1.00)		1.00 *** (1.00)		1.00 *** (1.00)		1.00 *** (1.00)		1.00 *** (1.00)	
14 Age squared - country mean	1.01 *** (1.00)		1.01 * (1.00)		1.01 ** (1.00)		1.01 * (1.00)		1.01 ** (1.00)		1.01 * (1.00)	
15 In employment	1.83 *** (1.04)		1.05 (1.04)		1.83 *** (1.04)		1.05 (1.04)		1.83 *** (1.04)		1.05 (1.04)	
16 In employment - country mean	0.94 (2.03)		0.35 (3.26)									
17 Business angel in last 3 years	1.93 *** (1.05)		1.32 *** (1.07)		1.93 *** (1.05)		1.32 *** (1.07)		1.93 *** (1.05)		1.32 *** (1.07)	

Table 4 continued

DEPENDENT	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
	Commer. Start-up	Social Start-up	Commer Start-up	Social Start-up	Commer Start-up	Social Start-up
18 Business angel in last 3 y - country mean	0.01 + (13.40)	1.53 (85.80)	0.02 + (11.26)	1.76 (56.77)	0.01 * (6.50)	
19 Know entrepreneur	2.31 ** * (1.03)	2.02 ** * (1.04)	2.31 ** * (1.03)	2.03 ** * (1.04)	2.31 *** (1.03)	2.02 ** * (1.04)
20 Know entrepreneur – country mean	3.31 (2.58)	3.09 (5.01)				
21 Effective constraints on executive (t-1)	1.14 * (1.05)	1.14 (1.09)	1.17 ** (1.05)	1.16 + (1.08)	1.17 *** (1.05)	1.17 * (1.08)
22 Government spending / GDP	0.97 ** * (1.01)	0.99 (1.01)	0.97 ** * (1.01)	0.98 + (1.01)	0.97 *** (1.01)	0.98 + (1.01)
23 Log of GDP per capita ppp (t- 1)	0.67 * (1.19)	0.48 * (1.33)	0.63 ** (1.16)	0.43 ** * (1.27)	0.61 *** (1.15)	0.40 ** * (1.24)
24 GDP growth (t-1)	0.97 (1.02)	0.98 (1.04)	0.97 (1.02)	0.98 (1.04)	0.97 (1.02)	0.98 (1.04)
Constant	25084.4 ** (33.58)	722158.6 * (386.45)	46630.0 ** (27.99)	2676445. ** 1 (246.90)	55826.3 *** (25.30)	3722849. ** 8 (164.68)
Variance (cons)	0.12 ** * (0.0275)	0.361 ** * (0.0793)	0.125 ** * (0.0286)	0.352 ** * (0.0776)	0.125 *** (0.0284)	0.355 ** * (0.0782)
Cov (cons1\cons2)	0.144 ** * (0.0392)	0.0193 ** * (0.00296)	0.145 ** * (0.0396)	0.0203 ** * (0.00296)	0.145 *** (0.0395)	0.0203 ** * (0.00296)
Observations	114,341	114,341	114,341	114,341	114,341	114,341
No of countries	47	47	47	47	47	47

Standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$

Both coefficients and standard errors transformed to odds ratios.

Table 5. Results of Logistic Multi-Level Bivariate Regression: Odds Ratios of individual-level and country-level Effects on Commercial and Social Entry – Robustness Check with established Social Capital indicators

DEPENDENT	(4a)		(4b)		(5a)		(5b)	
	Commer.	Start-up	Social	Start-up	Commer.	Start-up	Social	Start-up
1 Social E. young & established	1.46 ***	(1.07)	6.35 ***	(1.06)	1.47 ***	(1.07)	6.39 ***	(1.06)
2 Social E. young & established – country mean	50.3	(20.49)	16432.2 *	(75.64)	96.0 +	(12.95)	26108.1	(31.34)
3 Commercial E. young & established	0.34 ***	(1.05)	1.01	(1.05)	0.33 ***	(1.05)	1.01 **	(1.05)
4 Commercial E. young & established – country mean	10.88 *	(2.83)	0.04 *	(4.45)	13.40 *	(2.93)	0.03 *	(4.37)
5 Female	0.73 ***	(1.03)	0.90 **	(1.04)	0.73 ***	(1.03)	0.90 **	(1.04)
6 Education secondary or higher	1.23 ***	(1.04)	1.32 ***	(1.06)	1.22 ***	(1.04)	1.32 ***	(1.06)
7 Education sec or higher - country mean	2.47	(1.75)	10.91 **	(2.13)	1.70	(1.82)	6.02 *	(2.22)
8 Education postsecondary	1.04	(1.04)	1.34 ***	(1.04)	1.04	(1.04)	1.35 ***	(1.04)
9 Education postsecondary - country mean	0.72	(1.48)			0.68	(1.54)		
10 Age	1.05 ***	(1.01)	1.01	(1.01)	1.06 ***	(1.01)	1.01	(1.01)
11 Age - country mean	0.57 **	(1.20)	0.80	(1.30)	0.49 ***	(1.21)	0.65 +	(1.30)
12 Age squared	1.00 ***	(1.00)	1.00 ***	(1.00)	1.00 ***	(1.00)	1.00 **	(1.00)
13 Age squared - country mean	1.01 **	(1.00)	1.00	(1.00)	1.01 ***	(1.00)	1.00 +	(1.00)
14 In employment	1.81 ***	(1.04)	1.07	(1.05)	1.80 ***	(1.04)	1.06	(1.05)
15 Business angel in last 3 years	1.95 ***	(1.05)	1.39 ***	(1.07)	1.90 ***	(1.05)	1.36 ***	(1.07)
16 Business angel in last 3 y - country mean	0.02 *	(5.86)			0.02 *	(6.69)		
17 Know entrepreneur	2.53 ***	(1.03)	2.09 ***	(1.04)	2.53 ***	(1.03)	2.09 ***	(1.04)

Table 5 continued

DEPENDENT	(4a)	(4b)	(5a)	(5b)
	Commer. Start-up	Social Start-up	Commer. Start-up	Social Start-up
18 Effective constraints on executive (t-1)	1.18 ** (1.06)	1.13 (1.08)	1.20 ** (1.06)	1.16 + (1.09)
19 Government spending / GDP	0.97 *** (1.01)	0.97 * (1.01)	0.96 *** (1.01)	0.96 ** (1.01)
20 Log of GDP per capita ppp (t-1)	0.80 (1.26)	0.45 * (1.38)	0.99 (1.29)	0.61 (1.40)
21 GDP growth (t-1)	0.99 (1.03)	0.96 (1.04)	0.98 (1.03)	0.94 (1.04)
22 Generalized Trust	0.997 (1.01)	0.995 (1.01)		
23 Membership in associations			0.998 + (1.00)	0.998 (1.00)
Constant	26108.1 ** (40.45)	1306.4 (190.00)	174555.8 ** (45.11)	26108.1 * (163.86)
Variance (cons)	0.115 *** (0.0290)	0.257 *** (0.0634)	0.109 *** (0.0287)	0.218 *** (0.0563)
Cov (cons1\cons2)	0.139 *** (0.0378)	0.0313 *** (0.00311)	0.120 *** (0.0349)	0.0297 *** (0.00318)
Observations	103,298	103,298	98,970	98,970
No of countries	39	39	36	36

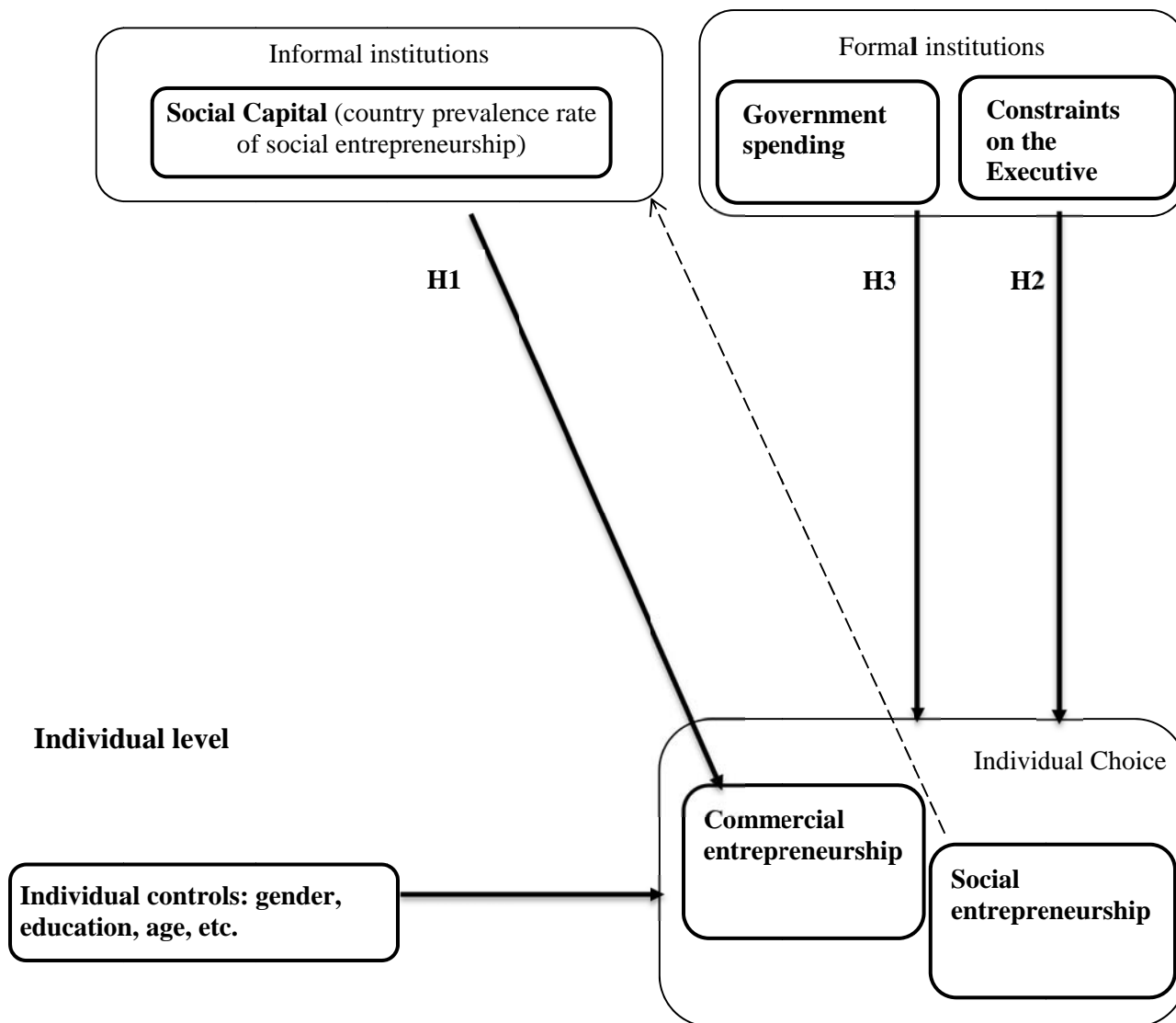
Standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$

Both coefficients and standard errors transformed to odds ratios.

Figure 1: Conceptual Framework

National-Level



Note. The dotted arrow signifies that, over time, the creation of more social enterprise start-ups (flow) at the individual level will lead to higher levels of entrepreneurship social capital within a country (stock).