Human Capital in Social and Commercial Entrepreneurship

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ABSTRACT

We advance research on human capital and entrepreneurial entry and posit that, in order to generate value, social entrepreneurship requires different configurations of human capital than commercial entrepreneurship. We develop a multilevel framework to analyse the commonalities and differences between social and commercial entrepreneurship, including the impact of general and specific human capital, of national context and its moderating effect on the human capital-entrepreneurship relationship. We find that specific entrepreneurial human capital is relatively more important in commercial entrepreneurship, and general human capital in social entrepreneurship, and that the effects of human capital depend on the rule of law.

Keywords: human capital; education; commercial entrepreneurship; social entrepreneurship; institutions; rule of law; property rights; Global Entrepreneurship Monitor, multi-level modelling

JEL codes: J24, L26, O17

1. Introduction

Many aspects of the venture creation process, such as the necessity to innovate, to take risks, and to coordinate resources (Schumpeter, 1934), will be common to social and commercial entrepreneurs. In this respect, the two occupations may draw on a similar entrepreneurial talent pool. However, while social and commercial entrepreneurship both create value, they differ in the primary objective of the activity. Social entrepreneurs identify opportunities arising from "neglected problems in society involving positive externalities", which are neither incorporated into the market nor addressed by the government (Santos, 2012, p.342). By realising those opportunities, social entrepreneurs create "social welfare" (Mair & Marti, 2006; Zahra, Gedajlovic, Neubaum & Shulman, 2009) while taking the financial viability of their venture as a constraint. In contrast, commercial entrepreneurs maximise "private welfare" by creating value while capturing the residual for themselves (Santos, 2012). Because the goals and the way in which value is created differ for social and commercial entrepreneurs, they may need to rely upon different skills and abilities; implying that the two types of entrepreneur may not be drawn from exactly the same pool of talent.

Human capital is important for all entrepreneurs in making occupational choices in the labour market between paid employment and venture creation (Parker, 2009 for a review). It is useful to follow Becker (1964) in distinguishing between general human capital, which can be employed across a variety of occupations and industries, and specific human capital, for which the derived value is specific to a context, say a job, sector or occupation (Acemoglu & Pischke, 1998). We argue that, in evaluating the decision to become an entrepreneur, it is important to consider how specific and general human capital are combined. We explore the proposition that their relative weights will differ for social as against commercial entrepreneurship because social entrepreneurs do not pursue the same objectives and this leads to differences in their activities.

Both types of entrepreneurs will rely on entrepreneurship-specific skills and knowledge. However, different and additional abilities may be needed for social entrepreneurship, in particular to identify and exploit opportunities that can generate positive external effects. Hence, we argue that general human capital, which is associated with a more diverse cognitive perspective, may have relatively greater significance for social entrepreneurs. This is because the scope of their objectives is broader and their activities more complex; whilst employing market-based strategies, they also seek to create value that is not captured within direct market transactions. Thus they need to attend simultaneously to potentially conflicting social and economic logics in their enterprise (Battilana & Lee, 2014; Mair, Meier & Lutz, 2015) as well as to develop capabilities for relating to a wide set of stakeholders. Furthermore, their actions may need to be strongly embedded in local communities, to mobilize resources and stimulate a wider social impact (Austin, Stevenson, Wei-Skillern, 2006; Stephan, Patterson, Kelly & Mair, 2016).

To explain engagement in social entrepreneurship fully, we argue that one needs to consider both motivational aspects and human capital theory. The existing social entrepreneurship literature focusses on the importance of other-regarding values and prosocial-motivation of individuals as determinants of social entrepreneurship (e.g., Miller, Grimes, McMullen & Vogus, 2012; Renko, 2013). The specific skills and broader abilities needed to act upon those values have been rarely considered (exceptions include: Bacq, Hartog & Hoogendoorn, 2014; Parker, 2008). Yet an occupational choice of social entrepreneurship is not necessarily purely driven by values: an individual characterised by other-regarding values may follow a commercial project and realise his/her values outside that project, say by philanthropic giving (Mickiewicz, Sauka & Stephan, 2016). The choice to engage in social entrepreneurship will be conditioned on the individual's human capital that enables the identification and formation of a relatively complex venture which is

characterised by the joint supply of commercial output and of positive external effects. Moreover, the human capital characteristics that enhance individual capacities to realise positive externalities may also be those that motivate people to search for those opportunities; an example of the socializing effects of education proposed in value theory (Schwartz, 2008). Values will influence an individual's cognitive alertness, and in turn, those values will be affected by perceptions: what we are able to notice and understand[1]. This leads us to hypothesise about the relationship between both specific and general human capital and entry into commercial as against social entrepreneurship, considering the ability-enhancing (as typically discussed in economic approaches) and the motivation-shaping effects (as alluded to in psychological approaches) of human capital.

The impact of these factors will be moderated by aspects of the institutional context. In considering differences in the propensity to enter social and commercial entrepreneurship across nations, the balance of returns from human capital from different occupational choices is contingent on country-specific institutional characteristics. North (1990) stresses the importance of market supporting institutions for economic performance, and since then, institutional economists have highlighted the rule of law as the fundamental aspect of institutions (Acemoglu & Johnson, 2005). A weak rule of law increases the risk of expropriation of entrepreneurial returns, more so than of income from employment, shifting the balance of incentives to the latter (Estrin, Korosteleva & Mickiewicz, 2013b). Hence, both commercial and social entrepreneurs are more common in societies with strong constitutional-level institutions (Estrin, Mickiewicz & Stephan, 2013a). Furthermore, returns to different forms of entrepreneurship and to different types of human capital may be sensitive to institutional contexts, and this applies to social as well as commercial

[1] Schwartz, Sagiv and Boehnke (2000) provide arguments and general evidence that values influence information processing and attention focus.

entrepreneurship. The literature has not previously attempted to unpack these complex cross-country differences by investigating the role that national institutions may play in moderating the effects of individual-level human capital characteristics on different forms of entrepreneurship. In particular, we explore whether the rule of law has a moderating effect on how different types of human capital support entrepreneurship comparing its social and commercial forms.

Our research questions therefore span personal characteristics and national contexts, which means that multi-level modelling is the appropriate methodology. We theorize about why the rule of law moderates the impact of general and specific human capital on individual choices to become a social entrepreneur, in ways that are different for commercial entrepreneurs. We test our hypotheses on a large cross-national data set, consisting of population-representative surveys combined with independent indicators of the rule of law.

This study contributes to research on both human capital and entrepreneurship, especially social entrepreneurship. It broadens our understanding of the role of human capital in entrepreneurship by newly considering socialization effects of general human capital alongside the well-established ability effects of human capital. Analysing human capital in relation to social entrepreneurship highlights a broader insight, namely the need to acknowledge heterogeneity among entrepreneurs, their preferences, and the varying returns they seek – when investigating the effects of human capital. Moreover, we offer a more contextualized understanding of the role of human capital by combining human capital theory and institutional theory. Our multi-level framework leverages institutional theory to make predictions about the heterogeneous effects of different types of human capital in a variety of country contexts. This responds to calls for greater consideration of context in entrepreneurship research (Zahra & Wright, 2011; Welter, 2011). In sum, while the link between human capital and entrepreneurial *performance* is well documented, how human

capital influences entrepreneurial *entry* is less well researched and the findings are conflicting to date. Our research suggests that theorizing about the heterogeneous effects of human capital, among different types of entrepreneurs as well as across different institutional settings, will lead to sharper results.

We advance the understanding of social entrepreneurship by drawing attention to the important role of ability and human capital, where the current discourse is dominated by a focus on motivation. In so doing we respond to a call by Parker (2008) to provide a simple but theoretically grounded typology to understand who becomes a social entrepreneur, and in particular how differences in human capital drive different choices in entrepreneurship. This helps to answer whether social and commercial entrepreneurship compete for the same entrepreneurial talent – they do so only to a limited extent. In fact, our findings further corroborate a 'crowding in' effect, whereby social entrepreneurship attracts new talent into the entrepreneurial process (Estrin et al., 2013a).

2. Theoretical framework

2.1 Entrepreneurship

Entrepreneurship - "new entry" through the efforts towards the creation of a viable business (Gartner, 1989; Reynolds, Bosma, Autio, Hunt, De Bono, Servais, Lopez-Garcia & Chin, 2005) - results from an individual's occupational choice to work on his/her own account (e.g., Hebert & Link, 1988). Commercial entrepreneurship implies entry into business activities that rely on market exchange structures with the entrepreneur's objective being to maximise profits. Thus, commercial entrepreneurs capture privately the residual value created within their enterprise. In contrast, social entrepreneurship definitions commonly stress that the objective of the organization is to address social rather than commercial needs, by social wealth creation (Mair & Marti, 2006; Zhara et al., 2009). Santos

(2012) moves this literature forward by observing that the typical activities by social entrepreneurs can be conceptualised as generating positive externalities – value that is created by the enterprise primarily accrues to wider society and will not be contained within the market exchange in which the enterprise is involved. Of course, commercial entrepreneurs may also generate positive externalities (e.g., through generating employment), as well as negative ones (e.g. pollution). However, the generation of positive externalities can be viewed as the objective of social entrepreneurship rather than a potential side effect as in commercial entrepreneurship.

Past research has highlighted how the social goals and positive externalities pursued by social entrepreneurs add greater complexity to their activities compared to commercial entrepreneurs. In contrast to either advocacy- or government organizations, social enterprises mobilize for bottom-up social change through empowerment processes (Santos, 2012; Stephan et al., 2016). This extends the scope of activities beyond the boundaries of the enterprise. It typically entails that the enterprise is open to diverse stakeholder influences, is embedded in local communities, and is 'relational' in its approach by shaping networks across sectors (commercial, non-profit, and government) to stimulate social change as well as to leverage resources (Stephan et al., 2016). This compares with transactions in commercial enterprises that are more focussed and address a narrower set of stakeholders (financiers, suppliers, employees) who are largely aligned with the single goal of residual value capture within the organization.

An increasing number of studies document how the different logics of action associated with social and commercial goals, and the need to consider both simultaneously, can lead social entrepreneurs into trade-offs, and increase the complexity of decision-making (e.g. Mair et al., 2015; Battilana & Lee, 2014, for a review). For instance, to gain legitimacy and resources from funders, social entrepreneurs need to appeal to a commercial logic,

demonstrating their management capability and perhaps offering dividends, aligning themselves with respective industry organizations. Yet to be credible to their beneficiaries, they may be expected to closely engage with local stakeholders, to measure social impacts, to reinvest profits in social impact creating activities, and to embed themselves in cross-sector networks and partnerships (e.g., Austin et al., 2006; DiDomenico, Haugh & Tracey, 2010; Pache & Santos, 2013).

2.2. Human Capital and Entrepreneurship

The economic analysis of an individual's choice to become an entrepreneur focuses on alternative occupations in the labour market; paid employment as against entrepreneurship (Lucas, 1978). Rational utility maximising individuals choose to become entrepreneurs if the expected utility they gain from it is higher from that obtained from paid employment. Greater expected utility from entrepreneurship may be caused, for example, by differences in ability generated by variation in human capital (van Praag, 2005); in attitudes to risk (Khilstrom & Laffont, 1979); or in utility functions, for example placing greater emphasis on non-pecuniary rewards such as independence and job satisfaction (van Praag & Versloot, 2007). There have been as yet few applications of this framework to the phenomenon of social entrepreneurship, though Parker (2008) develops a life cycle model in which differences in time preferences lead individuals to become social entrepreneurs at different points in their lives.

We seek to extend economic modelling of the occupational choice of entrepreneurship to include social entrepreneurship by focusing on the differential effects of human capital. Our approach draws on the distinction between general and specific human capital (Becker, 1964), with general skills being typically acquired through formal education, and specific skills via experience (Unger, Rauch, Frese & Rosenbusch, 2011). In line with extant literature; we consider the determinants of entrepreneurial occupational choice to be

the returns from general and specific human capital, compared to their opportunity costs (Le, 1999; Davidsson & Honig, 2003; Parker, 2011, Unger et al, 2011). However, relative to commercial entrepreneurship social entrepreneurship entails broader objectives and activities, which may alter the balance of advantage of general versus specific human capital. We argue that the main difference will be through the effect of general human capital; the broader scope of the goals and activities of social entrepreneurs will draw relatively more intensively on general compared to specific human capital.

The goals of social and commercial entrepreneurs are sufficiently differentiated that one might expect each activity to attract individuals characterised by quite different motivations, or value sets (preferences)[2]. Yet motivation cannot be the sole differentiator of social and commercial entrepreneurship; for example other-regarding values may also be realised both by those in salaried employment and in purely commercial entrepreneurship, outside their occupation, for example by charitable activity and giving. Thus, it is also the ability to realise benefits from the joint supply of a commercial product/service and positive external effects, which induces an individual to create a social venture. Both of these elements –the abilities set and the values set– are defined by his/her human capital characteristics. Hence, we need to understand the features of human capital which drive the choice of commercial and social entrepreneurship, which will be associated both with values and with the relative rates of return.

2.2.1 General Human Capital and Entrepreneurship

[2] Values and motivations differ in their level of abstraction, although the terms are often used interchangeably. Values refer to general life goals and are more abstract than motivations which typically are focussed on specific objects or events. In the economics literature, both concepts are typically referred to as preferences. Shalom Schwartz introduced a general theory of values which is now corroborated by evidence from over 80 countries. It differentiates two broad value dimensions including self- and other-regarding values and openness to change vs. conservation values, as well as 10 more specific value types (see Schwartz, 2012, for an introduction).

Investment in *general human capital* has positive effects on both entrepreneurial entry and performance because it leads to a broad knowledge base which enables individuals to integrate new knowledge and adapt to new situations more easily (Lazear, 2005). In particular, it enhances the individual's ability to discover and exploit opportunities (e.g., Davidsson & Honig, 2003; Unger et al., 2011). However, empirical research linking education to commercial entrepreneurship entry yields a mixed pattern (also Le, 1999). Some studies report that education is positively associated with the likelihood to engage in commercial entrepreneurship (e.g., Arenius & Minniti, 2005; Block, Hoogerheide & Thurik, 2013; Minniti, Bygrave & Autio, 2005b; Parker, 2009, 2011). Other studies find no relationship (van der Sluis, van Praag & Vijverberg; 2005, 2008). Finally, some research suggests that it is important to consider the type of education: beyond secondary education, higher education may not have an additional positive effect on entry into commercial entrepreneurship (e.g., Parker & Belghitar, 2006). This is possibly due to rising opportunity costs, because more highly educated individuals are likely to be offered managerial jobs in wage employment that like entrepreneurship entail considerable decision latitude and variable incentives – yet entail less risk bearing[3].

Interestingly, there is as yet only limited analysis of the effects of education on social entrepreneurship. Nonetheless, findings available through the Global Entrepreneurship Monitor executive and special topic reports suggest a positive relationship (Bosma & Levie, 2010; Terjesen, Lepoutre, Justo & Bosma, 2012). However studies that explore the education-social entrepreneurship relationship controlling for alternative explanation and using inference statistics are rare (for an exception and confirming a positive relationship see Van Ryzin, Grossman, DiPadova-Stocks & Bergrund, 2009). Given its broader scope, higher

[3] The findings on human capital may also be confounded with results on financial capital (Le, 1999); in our study we will proxy for the latter.

levels of education may be particularly important to identify and exploit opportunities for social entrepreneurship. While investment in education is likely to increase the returns to commercial entrepreneurship relative to alternative occupations, these returns may be even higher in social entrepreneurship. Note that to conform to the objective of social welfare maximisation for social entrepreneurs, returns must be defined broadly to incorporate the overall value generated by the enterprise, whether the residual is captured privately or not.[4]

Psychological approaches stress that education, and especially higher education, has a two-fold socializing effect. It enhances flexibility, openness and independent thinking (Kohn & Schooler 1983; Schwartz, 2008) – as also emphasized by economic approaches. In addition, higher education has been found to enhance other-regarding values and engagement in self-initiated, pro-social actions such as volunteering and political activism (Abrahamson & Inglehart, 1994; Schofer & Fourcade-Gourinchas, 2001; Schwartz, 2008, 2010). Thus, higher education instils preferences and motivations consistent with the core aspiration of social entrepreneurs to contribute to the welfare of others and to create societal wealth (Stephan, Uhlaner & Stride, 2015).[5] These motivations are less likely to sit comfortably with commercial entrepreneurship (Lukes & Stephan, 2012; Noseleit, 2010). Thus, we argue that higher levels of education may have a more pronounced effect on social as against commercial entrepreneurs. This is because socialization element of education might favour both a better understanding of the more complex nature of social entrepreneurial opportunities and the objective of social welfare maximisation rather than profit maximization, introducing a 'pro-social bias' (Nga & Shamuganathan, 2010).

[4] Bacq et al. (2014) find that in relative terms, the weighting of entrepreneurial skills in human capital is lower for social than for commercial entrepreneurs, while the former may be superior in general skills; those skills enable them to identify the nature of positive external effects.
[5] There may also be a self-selection effect such that those with pro-social values self-select into higher education.

Taken together, the socializing effects of education and human capital theory lead us to expect relatively stronger effects from education (general human capital) on social than commercial entrepreneurship: (i) adopting other-regarding values is a necessary condition of social entrepreneurship; and (ii) the latter also requires a broader set of skills conducive to identifying opportunities in producing positive external effects.

Hypothesis 1a: *Individuals who have completed tertiary (higher) education have a greater likelihood to choose social, compared to commercial, entrepreneurial entry.*

The same reasoning does not apply to specific (entrepreneurship related) human capital as we elaborate next.

2.2.2. Specific Human Capital and Entrepreneurship

With respect to specific entrepreneurial human capital, social and commercial entrepreneurial activities have much in common. Many aspects of the venture creation process are the same for both, notably the necessity for the entrepreneur to identify business opportunities, to bear the risks involved in new venture creation, and to identify and organise the resources necessary for success (e.g., Dacin et al., 2010; Meyskens, Robb-Post, Stamp, Carsrud & Reynolds, 2010; Reynolds, 2011). All these activities require entrepreneurial skills, i.e. the specific know-how related to the starting and running of a business, often acquired through previous start-up experience (Unger et al., 2011). Such skills involve being sensitive to opportunities and crafting business models to exploit them as well as being proactive and finding solutions to the various obstacles in the way of creating a new business. These skills are not necessarily valued in wage employment where the division of labour gives rise to organizational hierarchies and processes that typically require some degree of compliance as well as deeper subject matter expertise (Lazear, 2005). This would suggest that

some individuals with specific (entrepreneurial) skills would choose to set up social and commercial enterprises in preference to accepting paid employment. In economic models of occupational choice of entrepreneurship, individuals seek careers that will maximize their benefits from their human capital. Individuals with entrepreneurial skills choose entrepreneurship over paid employment when the returns from the former exceed the market employment wage. In this respect, unlike general human capital, specific entrepreneurial capital may entail lower opportunity costs vis-a-vis paid employment.

Yet there may also be differences in the relative productivity of the entrepreneurial skills when deployed in social as against commercial entrepreneurship. This implies we need to consider not only the differences in terms of opportunity cost of both types of entrepreneurship against salaried work, but also the opportunity cost of one type of entrepreneurship versus another. This may lead to differences in the relative likelihood of choosing commercial versus social entrepreneurship for those endowed with entrepreneurial skills.

In particular, entrepreneurial competence may weigh less heavily in the set of social entrepreneurs' skills; this is likely to be only one important ingredient alongside other skills necessary in creating positive externalities (and which are captured by general human capital). Social entrepreneurship will require additional distinct skills especially with regard to the generation of social impact (Stephan et al., 2016). Considering the emphasis on social goals, it is likely that, purely entrepreneurial skills will weigh relatively less heavily in individuals' considerations to start a social venture. These individuals will also be concerned about their social impact skills and indeed may self-select out of venture creation efforts if they perceive to lack those skills; regardless of their entrepreneurial skills. The more diverse skill basis appropriate for social entrepreneurship contrasts with commercial entrepreneurship, where specific entrepreneurial skills generally yield a stronger impact than

general human capital (i.e. education, Unger et al., 2011). That in turn implies higher opportunity cost of the former for commercial entrepreneurship.

Thus while specific human capital is important for social as well as commercial entrepreneurship, the relative weight of specific human capital is higher for the latter.

Hypothesis 1b: *Individuals who have specific (entrepreneurial) human capital have a greater likelihood to choose commercial, compared to social, entrepreneurial entry.*

2.3 Rule of Law, Human Capital and Entrepreneurship

The relationship between human capital, both general and specific, and an individual's occupational choice will also be sensitive to the institutional context in which those choices are made. When considering social as against commercial entrepreneurship, the key contextual element is the institutional structure because, as stressed by North (1990) and Baumol (1990), institutions shape private incentives by defining individual returns and opportunity costs. Therefore the national institutional framework affects individual choices about engagement in entrepreneurship, including entry into social as against commercial entrepreneurship (Baker, Gedajlovic & Lubatkin, 2005; Estrin et al, 2013a).

Institutional arrangements in a particular country affect the balance of returns from different occupations. Baumol (1990) analysed this phenomenon by hypothesising that institutions create incentives which make it more or less attractive for individuals to pursue different forms of entrepreneurship: productive, unproductive and destructive. In many countries, the main threat to entrepreneurial success is expropriation or graft and a strong rule of law limits or prevents that (Acemoglu & Johnson, 2005). This implies that the relationship between both general and specific human capital and entrepreneurial activity may vary significantly, depending on the strength of the rule of law, which in turn leads to security of property and other economic rights (Epstein, 2011).

In particular, the rule of law influences the extent to which the potential returns from human capital investments can be captured by the individual and his/her enterprise. For example in the former Soviet Union, where entrepreneurial activities were largely illegal, the impact of human capital on incomes through the choice of an entrepreneurial career was much lower than in countries such as the US, where the rewards to entrepreneurship are more protected (Aidis, Estrin & Mickiewicz, 2008).

In situations where the rule of law is weaker, so that the threat of expropriation is greater, the appropriable returns from human capital in entrepreneurship compared to alternative occupations are skewed against entrepreneurship. Those with access to state power or means of violence (officials or criminal gangs) can seize the rewards of successful entrepreneurs because the latter are relatively few in number, easily identified and perhaps not strongly supported socially (Aidis et al., 2008). It is harder to seize a share of an individual's income from employment because their numbers are much greater and because social cohesion supporting that group will be stronger. Variations in the rule of law may therefore help to explain the cross-national differences in the returns to human capital observed in previous research on entrepreneurship (Arenius & Minniti, 2005; also Van der Sluis, Van Praag & Vijverberg, 2005; 2008 for reviews). A weaker rule of law is likely to constrain relatively more the potential of entrepreneurs who are characterised by valuable human capital, because their upside gains are threatened to a greater extent. Thus, we hypothesize a moderating, positive effect of the rule of law on the propensity of individuals with more valuable human capital, both general and specific, to engage in entrepreneurship.

These arguments can be refined to distinguish between the effects of the rule of law on social as against commercial entrepreneurship. Where the threat of expropriation is higher, the expected return to entrepreneurship that can be captured privately by the new organisation is reduced. Hence the rule of law is crucial for commercial entrepreneurs in allowing them to

capture the returns from their own innovations (e.g. Estrin et al., 2013a; 2013b). The implication of the rule of law may differ for social entrepreneurship. For commercial entrepreneurship returns are relatively easily identified and subject to expropriation when the rule of law is weak. In contrast social entrepreneurship produces positive external effects, but the *financial* gains to the enterprise may be modest or non-existent. In consequence, social entrepreneurs may be less prone to expropriation under a weak rule of law; a surplus is not easy to confiscate if shared and spread thinly across thousands of micro credit recipients, for example. Thus the deterrence effect of a weak rule of law may be less binding on social entrepreneurs. Our argument here is consistent with the view that social entrepreneurship is more likely to be prevalent where institutional voids are pronounced (Mair & Marti, 2009)[6].

Therefore we posit that the positive moderating effect of the rule of law on the relationship between human capital and entrepreneurial activity may be stronger for commercial entrepreneurs. While a weak rule of law reduces both financial and social returns the threat of expropriation is stronger for successful commercial entrepreneurs. Financial returns to social entrepreneurs may be smaller and social returns more difficult to identify and expropriate than the commercial returns captured within a new organisation. These arguments suggest that weak rule of law may have a greater negative effect on commercial venture creation by those with more valuable human capital than on social entrepreneurship.

So far we did not distinguish between the general and specific form of human capital, yet the mechanism that links the moderating effect of the rule of law may differ for each of these, even if the expected direction of the effect remains the same. In particular, for general

[6] The meaning of institutional voids differs in the literature that investigates context and social entrepreneurship sometimes referring to voids related to weak constitutional level institutions (i.e. weak rule of law) and at other times to weak government provision of services (Estrin et al., 2013a; Hoogendoorn and Hartog, 2011; Mair et al., 2013; Stephan et al., 2015). These differences are not our focus here. Low scores on our measure of constraints on the executive (rule of law) are similar to other conceptualisations of constitutional level institutional voids. In addition, we include a set of country-level control variables that proxy for institutional voids generated by lack of government provision of services.

human capital, in totalitarian societies, where law remains subordinate to political power, such as the former Soviet Union, education itself may be biased in such a way as to hinder the development of entrepreneurial skills such as opportunity recognition (Aidis et al., 2008).

In turn, for specific human capital, with a strong rule of law, entrepreneurial success is to a greater extent due to entrepreneurs' individual experience, skill and effort rather than to external circumstances (Aidis et al., 2008; Estrin et al., 2013). There is also more opportunity to acquire entrepreneurial experience. And finally, as already understood by Tocqueville, under conditions of political freedom, civic skills are developed and those in turn enhance the quality of entrepreneurial skills (De Tocqueville, 2003 [1835]). For all these reasons, specific entrepreneurial human capital may become more valuable when the rule of law is stronger.

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Thus, while our conclusions for both types of human capital are similar, the reasoning may slightly differ. We hypothesize:

Hypothesis 2a: *Where the rule of law is stronger, the likelihood of commercial entrepreneurial entry of those with general human capital is greater relative to social entrepreneurship.*

Hypothesis 2b: *Where the rule of law is stronger, the likelihood of commercial entrepreneurial entry of those with specific human capital is greater relative to social entrepreneurship.*

Figure 1 summarizes our hypotheses.

{Insert Figure 1 here}

3. Methods

3.1 Sample, Measures and Modelling Strategy

We merge Global Entrepreneurship Monitor (GEM) data in 2009 with a large group of independent country-level institutional indicators and macroeconomic controls from different sources.[7] Social entrepreneurship is not part of the regular GEM survey, but was included in 2009 as a special topic, and this provides the basis for our individual level dataset. We exclude some countries based on quality issues, following a recommendation in the GEM 2009 report (Terjesen et al., 2012), and opt for a rich model, with low omitted variable bias**,** yielding a usable set containing 68,885 observations from 37 countries. Our hypotheses focus on the differential effect of general and specific human capital on the likelihood that an individual starts a social or a commercial enterprise. Hence, in our core set of models, we constrain our sample to those respondents currently in the start-up process. This leaves us with a sample of 6,901. In robustness checks we also use a design where individual decisions to engage in the two types of entrepreneurial entry are contrasted with those of people not engaged in start-ups at all, that is based on the full 68,885 observations. Table 1 provides an overview of definitions and sources for all variables in this study. Table 2 lists the 37 countries and descriptive statistics for the variables central for this study for each country.

{Insert Tables 1 and 2 here}

3.1.1 Social and Commercial Entrepreneurship

For our core set of results, we apply a multilevel logit model comparing the individual likelihood of social and commercial entrepreneurial entry respectively. Our baseline category is commercial entry (coded "0"); social entry is coded "1". We conduct robustness tests focussing only on those who undertake start-up activity whilst being in paid employment

[7] With very few exceptions, the data consist of representative samples of at least 2,000 individuals in each country. The samples are drawn from the working age population which avoids the potential selectivity bias that could affect studies which focus on existing entrepreneurs. National datasets are harmonised across all countries included in the survey (Reynolds et al, 2005).

(Table 5 columns 2 and 3). As mentioned above, in further robustness checks we utilise the whole sample and test our hypotheses using multinomial multilevel modelling with three possible outcomes: no engagement in employment, those engaging in commercial start-up and those engaged in social start-up. In all these cases our results correspond to those reported below as the core.

In this study, we define social and commercial entrepreneurial entry in terms of start-up or nascent activity. To be classified as *starting-up or nascent entrepreneurs* in GEM, respondents answered affirmative that (a) they are alone or with others are currently trying to start a new business, (b) they have actively taken action to start the new business over the past 12 months, (c) they will at least part-own this business, and (d) they have not paid wages, salaries, or 'in kind' for more than 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*. Respondents who stated that their social entrepreneurial activity was the same as their commercial entrepreneurial activity (declared earlier in the survey) were treated as social entrepreneurs, as in Hoogendoorn and Hartog (2011).

3.1.2 Individual-Level Predictors (H1): Human Capital

As our preferred measure of general human capital, we consider tertiary (higher) *Education* to be the relevant aspect of human capital accumulation. This is because it is to a significant extent under the control of the individual and has been closely associated with identification of opportunities in entrepreneurship (e.g., Van Praag et al., 2013). Education is measured with four categories indicating whether the individual's highest completed level of

education is tertiary education, secondary education, incomplete secondary, or less than that. The latter is the reference category in our regressions.

We use *Entrepreneurship experience* as a proxy for specific human capital, in line with the conceptualization of specific human capital as skills obtained through relevant, specific practice (Becker, 1964). We construct this indicator based on two questions in the GEM survey. We coded respondents as possessing entrepreneurship experience if they answered affirmatively that (a) they have sold, shut down, discontinued or quit a business in the past 12 months that they owned and managed, and (b) that this business continued to exist after the respondent departed from it. Thus, our indicator of specific human capital captures recent start-up experience where the venture had some degree of success.[8] All human capital measures come from the GEM survey.

3.1.3 Individual-Level Control Variables

We include a set of individual level control variables taken from the GEM adult population survey. Previous research shows that men, middle-aged, and people in employment are more likely to start a business (Reynolds et al., 1999; Minniti et al., 2005a, 2005b). Past research and conceptual arguments also suggest that the gender and age distributions differ between social and commercial entrepreneurship; relative to commercial entrepreneurship, women, as well as both younger and older individuals, are more likely to enter social entrepreneurship (Estrin et al., 2013; Parker, 2008). We therefore include a dummy variable for gender with female =1 (*Female*), introduce the individual's *Age* (also in a quadratic form) and employment status (*In employment)* as control variables to address these possibilities. Furthermore, those who currently run a commercial or social venture may

[8] We add as a control variable whether a respondent is currently running a commercial or social enterprise as owner-manager. However, we do not use this as our measure of specific human capital as it confounds effects of skills with opportunity costs when the decision to start another business is taken.

be likely to continue in the same line of entrepreneurship; thus we also control for an individual's *commercial and social entrepreneurship engagement (CE engagement and SE engagement),* defined as currently running a business, measured through currently being a young or established entrepreneur in the GEM dataset. Young or established entrepreneurs are those whose business has paid salaries, wages or in kind for three months or longer and they own and manage that business.

Past research points to the importance of access to capital for potential entrepreneurs who engage in the start-up process, both commercial (e.g., Ho & Wong, 2006; Korosteleva & Mickiewicz, 2011) and social (Meyskens et al., 2010). It has also been identified as critical to include alongside human capital variables, as the two forms of capital are correlated, and otherwise an omitted variable bias could result. We proxy access to capital first through the GEM question whether the respondent has been a *Business Angel* in the past 3 years. In our robustness checks, we also control for respondents' household income, measured as being in the lower, middle or upper third of household incomes in the respondent's country of residence. The inclusion of household income reduced the available sample size, and more importantly, missingness in income is highly correlated with age, gender and employment status; therefore we do not have the same level of confidence in these tests. Access to capital may play a more significant role in commercial projects.

We also control for *knowing an entrepreneur* as it influences individual's engagement in business start-up positively, e.g. via role modelling effects (e.g., Arenius & Minniti, 2005; Wagner & Sternberg, 2004). As the prevalence of commercial entrepreneurs is higher than of social entrepreneurs (Terjesen et al., 2012), knowing an entrepreneur may affect the individuals' choice of commercial over social entrepreneurship. Finally, while recent evidence suggests that risk aversion does not differ between entrepreneurs and non-entrepreneurs; loss aversion does. In our regressions we address this by controlling for the

Fear of failure, which captures the idea that the potential loss from entering entrepreneurship is weighed more heavily than the potential gains, i.e. loss aversion. This is the dimension of risk that has been confirmed experimentally as relevant for entrepreneurs (Koudstaal et al., 2014). Social compared to commercial nascent entrepreneurs face a higher risk of failure (Renko, 2013); however, the impact of failure may be more serious for commercial entrepreneurs given the higher value of personal assets typically invested in a commercial project. On balance, we expect that greater fear of failure may lead individuals to enter into social instead of commercial entrepreneurship.

3.1.4 Country-Level Predictor: Rule of Law (H2)

We measure rule of law using the Polity IV indicator of efficient constraints on the arbitrary power of the executive branch of the government, *Constraints on the executive.* Compared to other indicators of institutional quality, this measure has the advantage of capturing the arguably the key necessary condition of the rule of law (Epstein, 2011), which in the context of entrepreneurial activity, link in the obvious way with the risk of expropriation (Acemoglu & Johnson, 2005). As robustness checks we include results which substitute for these variables with alternative measures of the rule of law, in particular the Rule of Law indicator from the Freedom House dataset and the Rule of Law indicator drawn from the World Bank Worldwide Governance Indicator database (as compiled by the comprehensive Quality of Government database: Dahlberg, Holmberg, Rothstein, Khomenko & Svensson, 2016)[9]. However we consider the Polity IV measure superior to the other two: as argued by political scientists, Polity IV stands out as a highly transparent and robust set of measurement ranked higher than that constructed by Freedom House (Munck & Verkuilen,

[9] The Quality of Government database also contains the rule of law measure from Bertelsmann Stiftung. Unfortunately this cannot be used in our empirical work because it only covers a subset of countries: developing economies.

2002). The one offered by World Bank is probably even further away from the rule of law concept, as it merges a number of disjoint dimensions into one factor. In addition, compared with the other two measures, Polity IV also has weaker correlation with GDP per capita, alleviating multicollinearity concerns.

3.1.5. Other Country-level Control Variables

Our empirical framework also requires controls at the country level to alleviate omitted variables bias. Social and commercial entrepreneurship are known to vary with a country's level of economic development; we control for this using *Per capita GDP* at purchasing power parity (World Development Indicators), in logarithm to allow for the expected nonlinear relationship. We further control for the level of *government activism*, which past research found to impact both social and commercial entrepreneurship (Fogel, Hawk, Morck and Yeung, 2006; Estrin et al., 2013b), using a measure of the size of the government based on Wall Street Journal / Heritage Foundation data.[10] We also control for the national *level of unemployment* to capture for the state of the labour market (and therefore the opportunity cost of entrepreneurship) and likewise for the share of the *working age population* in overall population, to help us to separate the individual age effects from the age structure in the environment. We lag all these variables by one year to reduce potential endogeneity. Importantly, this set of country-level control variables also allows us to account for possible confounding effects of the extent of social needs, i.e. 'opportunities' for social entrepreneurship.

We also control for the *level of existing entrepreneurial activity*, both social and commercial, in each country, by including the national rate of social and commercial young and established enterprise owners respectively. We also include the country level means of

[10] We follow Reynolds (2010) and transform this back to the simple ratio of government expense to GDP.

higher education attainment to ensure that the individual effects of general human capital are isolated more finely. Similarly we add country level prevalence rate of business angels, in addition to the individual effect.

While our primary interest is in formal institutions, we also control for a potential impact of informal institutions. For that purpose we follow both Reynolds (2011) and Hechavarria (2015) and include two cultural scales based on World Value Survey: one spans from "traditional" to "secular-rational" culture, the other from "survival" culture to "self-expression" culture closely related to postmaterialism values (Stephan et al., 2015).

Definitions of all variables discussed above are reported in Table 1, the correlation matrix of the individual level data is presented in Table 3, and correlations at the national level are presented in Table 4. There is relatively high correlation between GDP per capita and both the prevalence of tertiary education and survival values.[11] We include these variables in our specifications however, as we do not use them to test our hypotheses; rather we consider them as important controls.

{insert Tables 3 and 4 here}

3.2 Estimation

We follow Autio and Acs (2010) and Estrin and Mickiewicz (2011) amongst others in using multilevel modelling within the context of a cross-country, cross-individual entrepreneurship dataset. Multilevel modelling takes account of the fact that our dataset has a hierarchical structure in which individuals represent level one and countries represent level two. This allows us to control for unobserved country level heterogeneity related both to macro factors that are not directly included in the model and to sub-sample specific

[11] When we obtained variance inflation factors (VIF) after running a regression model corresponding to Model 1 below, the only VIF above the conventional 10 was for logarithm of GDP p.c. (apart from age and age square which are correlated by construction).

measurement errors. At the same time, we address the problem of unit dependencies, where, for example, two respondents from the same country in the same year are more likely to exhibit similar patterns in their behaviour. In this case, the independence assumption does not hold, and a multi-level, random effects model should be employed (Peterson, Arregle, & Martin, 2012; Rabe-Hesketh, Skrondal & Pickles, 2005). We test the significance of the country effects. For the null model, where we only include random country effects, the intra-class correlation (ICC) is 0.137 and highly significant ($p<0.001$). This supports the use of multi-level modelling. Based on Model 1 (with all variables of interest including our predictors) in Table 5, the intra-class correlation (ICC) decreases to 0.033. Yet it is significantly different from zero ($p<0.001$): our country level variables still leave some overall country level variance in dependent variable unexplained.

We estimate a multilevel logit model for social and commercial entrepreneurship, taking commercial start-up activity as a baseline category and present odds ratios (OR) instead of coefficients for ease of interpretation. Thus positive effects ($OR>1$) mean that a variable has a stronger effect on social as compared to commercial start-up. By comparison, negative effects ($OR<1$) mean that a variable has a stronger effect on commercial as opposed to social start-up. The drawback in using ORs is that as these represent responses to unit change in independent variables, the values for country prevalence rates will be very high. Table 5 presents the results per estimation model, where the second column "Model 0" present a baseline model with all control variables but not predictor variables included.

{insert Table 5 here}

4. Results

4.1 Education and Entry into Social and Commercial Entrepreneurship (H1a, H1b)

Model 0 of Table 5 presents the baseline model containing control variables only. Model 1 adds our predictor variables based on which we evaluate H1a and H1b. The data support H1a; we see a positive effect of tertiary education (OR = 1.35, $p<0.05$) meaning that it has a stronger positive effect on social compared to commercial entry. In support of H1b, we observe a negative effect of entrepreneurship experience (OR = 0.63, $p<0.01$) meaning that it has a stronger (positive) effect on commercial compared to social entry.

4.2 The Moderating Effect of Institutional Quality (H2a, H2b)

To evaluate the moderating effect of institutional quality on human capital, we first add the interaction between executive constraints and higher education in Model 2, and next we introduce the interaction between executive constrains and entrepreneurial skills in Model 3. Finally, as the most stringent test of our hypotheses, we include both interactions in Model 4 (all in Table 5).

The results provide support for H2b, but not for H2a. Institutional quality makes a significant difference to how people use their specific entrepreneurial skills (OR = 0.82, $p<0.05$, Model 4), but affects the use of their general human capital less (OR = 0.97 n.s., Model 4). This can be seen as fundamentally consistent with Baumol's (1990) perspective: it is the use of entrepreneurial talent that is predominantly affected by institutions. We plot the significant moderating effects in Figure 2 displaying the association of entrepreneurial skills with the likelihood to choose social over commercial entry. We see that the association of entrepreneurial skills with commercial entry is stronger in the presence of strong (vs. weak) rule of law (executive constraints).

4.3 Further Results

Some additional results are noteworthy. First, while the rule of law (executive constraints) does not have any impact on the choice between social and commercial entrepreneurship, this should not be interpreted as lack of evidence for a positive net effect of the rule of law on entry. Additional multilevel multinomial estimations run on the whole sample, showed a positive effect of the rule of law on entry into both types of entrepreneurship when contrasted with no entrepreneurial activity.

Second, current engagement in a social enterprise (*SE engagement*) has a consistent significant positive effect on the choice to start a new project as a social versus commercial enterprise, with the corresponding relative odd ratios remaining remarkably stable and high (OR = 4.66, Model 1 Table 5). This suggests that individuals, who are first attracted to social entrepreneurship, become serial social entrepreneurs.

Third, current engagement in a commercial enterprise (*CE engagement*) also has a positive effect on choosing social as opposed to commercial entry (OR = 2.59, Model 1 Table 5). This is very interesting: Estrin (2013a) identified a route leading from social to commercial projects, but here we also see the evidence for a positive spillover in the opposite direction – entrepreneurs currently running a commercial business are also more likely to start a new project as a social compared to a commercial enterprise. However, high rates of commercial entrepreneurship engagement *in a country* privilege commercial over social entry (OR = 0.007, Model 1 Table 5).

Fourth, we also observe a highly significant positive effect of gender on likelihood of choice of social versus commercial entry (OR = 1.65, Model 1 Table 5): women are relatively more likely to become social than commercial entrepreneurs supporting Hechavarria et al. (2012) and Terjesen et al. (2012).This suggests that socially oriented projects could be an important channel for women to enter into entrepreneurship.

Fifth, being in employment has a negative effect on the choice of social over commercial entry (OR = 0.649, Model 1 Table 5). This suggests that those not in employment are more likely to choose social rather than commercial entrepreneurship, and thus that social entrepreneurship may also be an important entry channel for those currently detached from the labour market.

4.4 Robustness Tests

We conducted a range of robustness checks with support our findings. The full results are available from the authors upon request.

First, we replicated the results in Table 5 using the indicator of entrepreneurial skills based on self-assessment instead of measure of experience with earlier projects. In this variant, the interaction effect with rule of law for H2b was only significant at $p<.10$.

Second, we repeated all the estimations restricting the sample only to those in employment, which could be seen as a design that comes closer to the logic of the occupational choice (Le, 1999). The results for all hypotheses and significance levels are exactly as in Table 5.

Third, we used alternative measures of the rule of law. Applying the Freedom House measure instead of Polity IV makes no difference to significance levels for our hypotheses. Using World Bank measure weakens the results for the rule of law. This may result both from the fact that the conceptual basis of their measure is weaker being more a catch-all factor rather than anchored in theory (Langbein & Knack, 2010), and it suffers from very high multicollinearity with the level of GDP per capita.

Fourth, we replicated our specifications running multilevel multinomial logit models with two outcomes: entry into commercial and social entrepreneurship, as contrasted with no entry. Here, to test our hypotheses we relied on post-estimation tests for differences in

coefficients between social and commercial entry (Wald tests). The significance and pattern of results for the hypotheses was the same as in Table 5.

Finally, we also ran models controlling in addition for household income. This did not change our results and the income effects were always insignificant. Therefore we did not use them in our main specifications.

5. Discussion

This multi-level study compared two forms of human capital as drivers of social and commercial entry whilst simultaneously considering contextual effects of the rule of law. We found that general human capital is relatively more important for social entrepreneurship while specific human capital is relatively more important for commercial entrepreneurship. Furthermore the rule of law moderated the effects of specific human capital on entrepreneurship.

This study advances research on how and why human capital influences entrepreneurial entry by outlining important contingencies of this relationship related to heterogeneity amongst entrepreneurs and across national contexts. Past research on human capital largely focusses on the consequences of human capital for firm performance (e.g., Rauch & Rijsdijk, 2013; Unger et al., 2011, van der Sluis, van Praag & Vijvenberg, 2005, 2008; Van Praag et al., 2013), whilst the effects of human capital on entrepreneurial entry are less well understood. Indeed, previous research generating mixed findings (e.g., Block et al., 2013; Le; 1999; Parker, 2009). Our study contributes to the latter in two ways.

First, through the novel application of a human capital lens to the analysis of social and commercial entrepreneurship, our study advances and broadens the conceptualization of human capital effects. In particular we include the ability enhancing effects of human capital, as stressed in economic theory, and the hitherto overlooked socializing effects of education in

terms of (pro-social) preferences. For human capital theory more broadly, our study highlights the importance of considering heterogeneity in the effects of general human capital on both individuals' skills *and* preferences, which helps to explain why different types of human capital may lead to different entry modes (social versus commercial).

Our analysis of human capital and social entrepreneurship also illustrates the need for a broader view of returns to occupational choices. We find that general human capital is of particular relevance in situations where the external benefits of occupational choices are greater and add to the purely private returns, as occurs with social entrepreneurship. The implications extend beyond the analysis of social entrepreneurship. The literature documents a wide variety of possible motives for entrepreneurship that go beyond the aim of accumulating monetary returns – for example, for open-source, high-tech entrepreneurs, ethnic and immigrant entrepreneurship, for family businesses, and for those pursing entrepreneurship to realize opportunities for greater personal independence. Greater consideration of this heterogeneity in returns to entrepreneurship can help future research to establish an even deeper understanding of how human capital relates to entrepreneurship and entrepreneurial entry, and likely yields more consistent findings.

Second, our research also offers a more contextualized understanding of human capital and entrepreneurship by integrating predictions from institutional theory and human capital theory. We outline how national institutions act as an important contingency influencing the opportunity costs and potential returns from human capital when it comes to occupational choices for entrepreneurship. This offers an additional explanation for the mixed findings in past research on human capital and entry mentioned earlier and helps to unpack the drivers of the repeatedly observed national variation in the effect of human capital on entrepreneurship (e.g., Arenius & Minniti, 2005; Parker, 2009; van der Sluis et al., 2005, 2008). Specifically, while effective institutions are important for both commercial and social

entrepreneurship (Estrin et al, 2013a), our results show that the moderating impact of the rule of law on the returns to specific human capital is more central for the former than the latter type of entrepreneurship. When the rule of law is strong, it ensures that commercial entrepreneurs have a better chance of keeping the private returns from their venture. This is consistent with Baumol's (1990) perspective that it is the use of entrepreneurial human capital which is particularly sensitive to the quality of institutions in the environment. In turn, social entrepreneurship is focussed on the generation of positive external effects rather than private gains (Santos, 2012); these are more widely dispersed and thus more difficult to expropriate, and therefore the moderating effects of the rule of law is less important for social entrepreneurs.

Moreover, the underlying resources and opportunities may differ in the different contexts. For example, entrepreneurial human capital may be rarer in countries where institutions are weaker (Aidis et al., 2008). Institutional weaknesses may also create more opportunities for social entrepreneurship (Mair & Marti, 2009), offsetting to some extent the negative incentive effects. Our results therefore help to explain why social entrepreneurship may play an important positive role in countries characterised by dysfunctional institutions and therefore we complement qualitative research in this area (e.g. Mair, Marti & Ventresca, 2012). In addition, the absence of the hypothesized significant moderating relationship between general human capital and the rule of law merits further careful research, particularly in environments where institutional voids exist.

Finally, for entrepreneurship theory, our findings contribute to a better understanding of the similarities and differences between social and commercial entrepreneurship, and they highlight the important role of human capital and ability next to the commonly considered differences in motivation between the two types of entrepreneurship. We show that social and commercial entrepreneurship attract different types of individuals, consistent with the

notion that these two forms of entrepreneurship are differentiated by both the type of human capital they require, and by the objectives and motivation of the entrepreneurs. For social entrepreneurship, our research highlights the importance of general human capital. This complements the field's focus on motivation as the key driver of social entrepreneurship (e.g. Dacin et al., 2010; Miller et al., 2012). This is not trivial. Prosocial motivation can be realized through channels other than social entrepreneurship, and it is only when this motivation is combined with the opportunity-recognition *ability* associated with higher education that individuals engage in the relatively more complex endeavour of setting up a social enterprise. In so doing, we respond to the call by Parker (2008) to provide a simple but theoretically grounded typology to understand who becomes a social entrepreneur. We also add more generalizable insights, derived from studying population-representative samples across a variety of countries, to social entrepreneurship research, a field still dominated by conceptual and case-based analysis (Gras, Moss & Lumpkin, 2014; Dacin, Dacin & Matear, 2010; Nicholls, 2010, for reviews).

Our additional findings provide renewed support for the notion that social entrepreneurship attracts different individuals than commercial entrepreneurship. Women, the highly educated and those who are not currently in employment are more likely to become social than commercial entrepreneurs. Together with past findings that social entrepreneurship is a way into commercial entrepreneurship (Estrin et al., 2013a)[12], the former opens up an important channel for valuable human talent to become entrepreneurs and (re-) enter the labour market.

[12] We note that our findings on gender are consistent with earlier findings by Hechavarria et al. (2012) and Terjesen et al., (2012) as well as Estrin et al., (2013a).

5.1 Strengths and Limitations

Apart from being able to draw on population representative samples across a wide range of countries, a further strength of our study is the use of multi-level modelling which allows us to test individual-level relationships at the same time as country-effects. This addresses aggregation and disaggregation biases (Peterson et al., 2012), namely that relationships observed at one level of analysis (e.g. country-level) may not generalize (and may be different from that equivalent relationship) at a different level of analysis (e.g. individual-level).

A limitation of the GEM dataset is the cross-sectional nature of the data, which gives rise to concerns about reverse causality. Our analyses alleviate such concerns somewhat as we investigated the effects of human capital that individuals obtained in the past (highest degree, past experience in commercial entrepreneurship) and used lagged data for country-level institutions and GDP. There is a need for future research to address all these questions and findings using longitudinal data (see Renko, 2013, for a good example).

The use of secondary datasets such as GEM also restricted the measures of human capital. We focussed on general education, rather than the specific type of subject studied, and on obtaining a degree rather than years of schooling. This choice of measures was probably adequate for our purposes; reputation effects of higher education (which determine opportunity cost of entry) are arguably contingent on obtaining a degree rather than years of schooling and the use of highest degree obtained also created greater comparability across countries. Nevertheless, future research could usefully investigate more fine-grained measures of education and could also help to unpack the mechanisms, including skills, motivation and confidence, that link higher education to entrepreneurial entry. In line with past research, we emphasized the socializing function of education, but we could not control for alternative explanations. For instance, education effects in part reflect differences in

individual persistence, family background and ability. However, a recent analysis by Block et al. (2013) suggests that controlling for endogeneity strengthens education effects on entrepreneurial entry, which in turn implies that those are possibly underestimated rather than overestimated by us.

We also acknowledge that GEM used a specific question for social entrepreneurship as an initiative, activity or organization with a particular community, social or environmental objective. The interpretation of such objectives may vary across cultures. Although to help interpretation GEM gave specific examples for community and social objectives, but not for environmental objectives. Thus the latter may be underrepresented in the sample of social entrepreneurs. As of yet, GEM is however the only large scale database on social entrepreneurship.

Apart from the directions we highlighted already, future research could explore the moderating effects of "lower level" (in the sense of Williamson, 2000) regulatory national institutions and policies, which were captured by a control variable (government spending) in our analyses. Whilst our focus was on the rule of law, informal institutions including culture and social capital may also influence the higher education – entrepreneurship link, as suggested by Stephan et al. (2015).

5.2 Policy and Practical Implications

Policy makers, for example in the European Commission, have adopted as an objective the creation of a favorable environment for the development of social businesses, because such firms are argued to "contribute to social cohesion, employment and the reduction of inequalities" (European Commission, 2013). Policy interest in social entrepreneurship stems from doubts about how much can be achieved towards social goals from for-profit motivation, and from scepticism about the effectiveness of bureaucratic and

centralised political interventions. In contrast to interventions by the state, social entrepreneurship generates highly decentralised modes of action, focused on resolving social problems at a local or relatively small-scale level. Social interventions are thereby differentiated, drawing from local knowledge, competing and subject to continuous innovative pressure. Our theoretical framework also emphasizes the joint supply characteristics of the social enterprise business model, and the commercial logic combined with focus on realisation of positive external effects, which can make social entrepreneurship a superior mode of action compared to the civil society charitable action, at least for some categories of social problems.

Our findings on the relationship between different forms of human capital and of entrepreneurial entry provides the basis for improved targeting of business policies, as well as of policies related to education including higher education. Our findings suggest that social enterprises are more likely to be started by those with higher education. For educators, especially in higher education, this suggests that a greater awareness and support of social entrepreneurial activities amongst students may be warranted (Lawrence, Philips & Tracey, 2012).

We find beneficial effects from specific entrepreneurial human capital for social entrepreneurship. This reinforces the case for programmes developing entrepreneurial skills among all types of students whilst emphasizing that entrepreneurial skills are useful for the realization of multiple objectives including social objectives. This contrasts with our experience in which entrepreneurship training and courses primarily focus on commercial entrepreneurship and on business and engineering students. Although further research is necessary, our findings seem to imply that those studying social sciences, medicine or humanities are well positioned to take up social entrepreneurial projects. In turn, those who

build entrepreneurial teams for social objectives should be well aware of the need for different human capital, as applicable in both commercial and social entrepreneurship.

Moreover, we found that social entrepreneurship attracts new categories of people into entrepreneurial activity; for example women or the more highly generally educated (Estrin et al., 2013a; Hechevarria et al., 2012 and Terjesen et al., 2012). Policymakers who seek to reduce gender discrimination in occupational choice may therefore be interested in promoting social entrepreneurship. This conclusion is reinforced by the phenomenon of "crowding in" (Estrin et al., 2013a), i.e. social entrepreneurship helps in developing entrepreneurial skills with broader applicability. This is an important finding for business support policies, highlighting that supporting social entrepreneurship may generate positive externalities such as stimulating commercial entrepreneurship.

Last but not least, our results can be interpreted as offering some predictions about the role of social entrepreneurship in different institutional environments. We have found that social entrepreneurship projects have a comparative advantage, relative to commercial entry, in weaker institutional environments. This has important implications for policy design supporting human development across nations. In particular, while commercial projects may be risky where rule of law is weak, social entrepreneurship projects are less so. Thus, there may be deeper reasons why the organisational form adopted for example by the Grameen Bank (Yunus, 2003) makes a good fit with the local environment, and why social entrepreneurship may be more efficient in developing than developed countries.

5.3 Conclusion

Our study reinforces the importance of human capital – abilities and skills – for entry into entrepreneurship. It extends human capital theory to social entrepreneurship and across national contexts; in doing so we find that national institutions act as important contingencies.

Our findings also enrich existing research on social entrepreneurship and the differences between social and commercial entrepreneurship. While past research has mainly focussed on differences in motivation, this paper highlights the importance of taking abilities and skills into account to understand who is likely to become a social entrepreneur.

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Table 1

Definitions of Variables and Descriptive Statistics

Variable	Definition	Mean	S.D.
Dependent variable (baseline category for logit model: engaged in commercial start-up)			
Social enterprise	Respondent actively involved in social start-up (1, 0 otherwise)	0.42	0.49
Dependent variable (baseline category for multinomial model: not engaged in start-up)			
Social enterprise (SE) start-up	Respondent actively involved in social start-up (1, 0 otherwise)	.027	.
Commercial enterprise (CE) start-up	Respondent involved in commercial start-up (1, 0 otherwise)	.037	.
Individual-level variables			
Education:	Highest level of education (dummy coded, baseline: no education beyond primary)		
Some secondary	Respondent has incomplete secondary education	.308	.
Secondary	Respondent has completed secondary education	.348	.
Tertiary	Respondent has completed tertiary education	.344	.
Entrepreneurship experience	Respondent sold, shut down, discontinued or quite a business in the past 12 months that he owned and managed, and this business continued its activities after the entrepreneur disengaged	.036	.186
Female	Female (1, 0 male)	.527	.499
Social entrepreneur (SE) engagement	Respondent is currently owner-managing a young or established social enterprise (1, 0 otherwise)	.027	.161
Commercial entrepreneur (CE) engagement	Respondent is currently owner-managing a young or established commercial enterprise (1, 0 otherwise)	.106	.308
Business angel in last 3 years	"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?" (1- yes, 0 no)	.032	.177
Know an entrepreneur	Respondent knows an entrepreneur (1, 0 otherwise): "Do you know someone personally who started a business in the past 2 years?". (1= yes, 0 no)	.378	.485
Fair of failure	Respondent would not start a business out of fear of failure (1, 0 otherwise)	.365	.481
Age	Age of respondent between 15 and 64 (inclusive)	40.80	13.16
In employment	Respondent is currently in full or part time employment (1, 0 not in employment)	.575	.494

Table 1 continued

Variable	Definition	Mean	S.D.
Country-level variables			
Executive constraints (t-1)	Polity IV 'Executive Constraints'; scores from 1="unlimited authority" to 7="executive parity or subordination"; higher value: less arbitrariness	6.17	1.59
Government spending (t-1)	Government spending / GDP (authors' calculations, based on Heritage Foundation data)	36.67	9.98
% Working Age Population (t-1)	Percentage of working age population in total population (based on World Bank)	66.34	4.28
% Unemployment (t-1)	Percentage share of unemployed in economically active population in 2008	7.78	3.66
Survival vs. Self-Expression	Survival vs. self-expression culture, averaged scores from 1999/2000 and 2005/2008 World Values Survey	.536	.964
Traditional versus Rational culture	Traditional vs. rational culture, averaged scores from 1999/2000 and 2005/2008 World values survey	-.031	.803
Logarithm of GDP per capita	Gross Domestic Product (GDP) per capita in purchase power parity (in natural logarithm)	9.84	0.78
Robustness checks			
Start-up skill	Respondent believes has skills for start-up (1-yes, 0-no skill)	.527	.499
Household income	Head of household's income, dummy coded categorised into three groups of equal number of respondents for each country (baseline: bottom third)	.33 each	
Rule of Law Freedom House	Rule of law as measured in the Freedom House data base	10.408	4.436
Rule of Law Freedom House	Rule of law as measured in the World Bank Worldwide Governance Indicators data base	.644	.216

Source: GEM 2009 unless specified otherwise. (t-1) indicates lagged variables. Institutional variables: values before mean-centring.

Table 2

Country Descriptive Statistics for Main Variables

Country	Social relative to commercial startup	Entrepre--nerial experience	Some secondary education	Secondary education	Tertiary education	Executive constraints
Algeria	0.45	0.02	0.31	0.35	0.28	5
Argentina	0.35	0.06	0.13	0.29	0.40	6
Belgium	0.51	0.05	0.11	0.41	0.41	7
Brazil	0.12	0.09	0.10	0.40	0.11	6
Chile	0.49	0.04	0.11	0.46	0.28	7
China	0.31	0.04	0.32	0.35	0.21	3
Colombia	0.42	0.06	0.14	0.38	0.29	6
Croatia	0.67	0.04	0.11	0.61	0.26	7
Finland	0.45	0.06	0.08	0.42	0.42	7
Germany	0.32	0.01	0.18	0.33	0.49	7
Guatemala	0.20	0.02	0.16	0.21	0.02	6
Hungary	0.49	0.02	0.27	0.30	0.30	7
Iran	0.48	0.06	0.14	0.32	0.30	2
Israel	0.45	0.01	0.07	0.38	0.51	7
Italy	0.54	0.08	0.26	0.49	0.19	7
Jordan	0.36	0.07	0.34	0.32	0.22	3
Korea	0.43	0.04	0.09	0.32	0.58	6
Latvia	0.36	0.03	0.07	0.56	0.37	7
Malaysia	0.02	0.02	0.17	0.30	0.24	5
Netherlands	0.35	0.01	0.08	0.63	0.29	7
Norway	0.50	0.05	0.00	0.40	0.52	7
Peru	0.35	0.06	0.15	0.41	0.20	7
Romania	0.73	0.02	0.14	0.49	0.21	7
Russia	0.44	0.11	0.07	0.07	0.86	4
Saudi Arabia	0.16	0.07	0.15	0.45	0.30	1
Slovenia	0.42	0.03	0.00	0.57	0.37	7
South Africa	0.49	0.03	0.38	0.41	0.07	7
Spain	0.31	0.04	0.31	0.16	0.42	7
Switzerland	0.43	0.03	0.06	0.59	0.32	7
Uganda	0.17	0.06	0.22	0.04	0.07	3
UK	0.32	0.02	0.18	0.42	0.39	7
United States	0.54	0.05	0.10	0.24	0.63	7
Uruguay	0.28	0.04	0.42	0.33	0.17	7

Table 3

Correlations among Individual-level Variables; (N=68,885 individuals)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Social relative to commercial start-up															
2	Incomplete secondary education	-0.03														
3	Secondary education	-0.00	-0.36													
4	Tertiary education	0.07	-0.35	-0.55												
5	Entrepreneurial experience	-0.04	0.02	0.01	-0.02											
6	Female	0.06	-0.01	0.01	-0.02	-0.01										
7	Age	0.03	0.04	-0.10	0.01	-0.01	0.00									
8	Age squared	0.04	0.04	-0.09	-0.01	-0.01	0.00	0.99								
9	Existing social business	0.21	-0.04	0.00	0.05	0.01	-0.01	0.02	0.01							
10	Existing commercial business	0.10	0.01	-0.03	-0.01	-0.04	-0.11	0.03	0.02	-0.01						
11	Household income – middle third	0.01	0.05	0.04	-0.11	0.06	0.03	-0.01	0.00	-0.01	-0.04					
12	Household income – top third	-0.00	-0.12	-0.04	0.23	-0.03	-0.09	-0.05	-0.06	0.03	0.07	-0.64				
13	Business angel	-0.02	-0.02	-0.01	0.03	0.02	-0.06	-0.03	-0.03	0.04	0.10	-0.04	0.05			
14	Knows entrepreneurs	-0.02	-0.05	0.01	0.05	0.01	-0.12	-0.16	-0.16	0.07	0.12	-0.03	0.11	0.16		
15	Fear of failure	0.05	0.02	-0.02	-0.01	-0.02	0.07	0.01	0.00	-0.02	-0.08	0.02	-0.04	-0.03	-0.03	
16	In employment	-0.07	-0.11	-0.02	0.18	0.07	-0.20	0.00	-0.05	0.06	0.22	-0.04	0.19	0.05	0.10	-0.03

Note. See Table 1 for variable definitions and reference categories.

Table 4

Correlations among Country-Level Variables (*N*=37 countries)

		1	2	3	4	5	6	7	8	9	10
1	Executive constraints										
2	Prevalence of social start-up	0.20									
3	Prevalence of commercial start-up.	-0.34	0.04								
4	Prevalence of tertiary education.	0.35	0.26	-0.46							
5	Prevalence of business angels	-0.33	0.08	0.58	-0.34						
6	GDP per capita (natural logarithm)	0.59	0.01	-0.54	0.69	-0.47					
7	Government spending	0.44	0.24	-0.46	0.51	-0.51	0.59				
8	Working age population	0.10	0.02	-0.19	0.50	-0.15	0.56	0.08			
9	Unemployment	-0.02	-0.32	-0.15	-0.38	-0.10	-0.24	-0.04	-0.11		
10	Survival values	0.49	0.43	-0.32	0.40	-0.37	0.68	0.53	-0.09	-0.22	
11	Traditional values	0.38	0.27	-0.16	0.56	-0.28	0.58	0.52	0.47	-0.28	0.18

Table 5
Multilevel Logistic Regressions on the Likelihood of Social against Commercial Start-up

	Model 0	Model 1	Model 2	Model 3	Model 4
Constant	0.548	1.070	1.024	1.085	0.436
	(1.437)	(2.790)	(2.675)	(2.841)	(1.117)
Individual level control variables					
Age	0.966*	0.962*	0.962*	0.963*	0.959*
	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)
Age squared	1.000*	1.000*	1.000*	1.000*	1.001**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
SE engagement	4.667***	4.656***	4.658***	4.699***	4.803***
	(0.444)	(0.444)	(0.445)	(0.449)	(0.504)
CE engagement	2.589***	2.595***	2.597***	2.595***	2.573***
	(0.210)	(0.211)	(0.211)	(0.211)	(0.228)
Business angel	0.830*	0.839+	0.838+	0.832*	0.871
	(0.075)	(0.076)	(0.076)	(0.076)	(0.086)
Know entrepreneur	0.931	0.923	0.924	0.925	0.913
	(0.054)	(0.054)	(0.054)	(0.054)	(0.058)
Fear of failure	1.333***	1.343***	1.343***	1.341***	1.324***
	(0.081)	(0.082)	(0.082)	(0.082)	(0.090)
Female	1.271***	1.265***	1.267***	1.268***	1.303***
	(0.071)	(0.070)	(0.071)	(0.071)	(0.081)
In employment	0.669***	0.649***	0.650***	0.647***	0.677***
	(0.043)	(0.042)	(0.042)	(0.042)	(0.049)
Country(level control variables					
Rate young &. established SE	2,422*	1,432+	1,479+	1,562+	830.9+
	(9,432)	(5,529)	(5,718)	(6,056)	(3,152)
Rate young &. established CE	0.006***	0.007**	0.008**	0.008**	0.010**
	(0.008)	(0.011)	(0.012)	(0.011)	(0.015)
Education sec. or higher	3.867+	3.617+	3.526+	3.561+	2.241
	(2.735)	(2.543)	(2.485)	(2.514)	(1.606)
Business angel	1,411*	841.3*	889.1*	854.5*	971.4*
	(4,269)	(2,529)	(2,677)	(2,579)	(2,891)
Logarithm of GDP p.c.	0.710	0.629	0.631	0.622	0.675
	(0.210)	(0.186)	(0.187)	(0.185)	(0.195)
Government spending	1.007	1.008	1.009	1.008	1.014
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Working age population	1.039	1.048+	1.048+	1.049+	1.054*
	(0.026)	(0.027)	(0.027)	(0.027)	(0.027)
Unemployment rate	1.043+	1.036	1.036	1.035	1.027
	(0.024)	(0.024)	(0.024)	(0.024)	(0.023)
Survival vs. self-expression	1.067	1.078	1.078	1.081	1.038
	(0.141)	(0.142)	(0.142)	(0.143)	(0.134)
Traditional vs. rational culture	1.016	0.978	0.976	0.976	0.940
	(0.127)	(0.126)	(0.126)	(0.126)	(0.119)

Table 5 continued

	Model 0	Model 1	Model 2	Model 3	Model 4
Effect. constr.		1.065	1.078	1.080	1.083
on executive		(0.056)	(0.059)	(0.057)	(0.058)
Individual(level human capital (H1)					
Some secondary		0.979	0.978	0.979	1.160
education		(0.125)	(0.125)	(0.125)	(0.161)
Secondary		1.048	1.041	1.052	1.170
education		(0.124)	(0.124)	(0.125)	(0.150)
Tertiary		1.360**	1.350*	1.365**	1.444**
education		(0.162)	(0.162)	(0.163)	(0.186)
Entrepreneurship		0.631**	0.631**	0.559***	0.541***
experience		(0.095)	(0.095)	(0.089)	(0.092)
Cross(level interaction effects (H2)					
Tertiary educ.*			0.970		0.966
Exec.constr.			(0.035)		(0.038)
Entrepr.exper.*				0.781**	0.816*
Exec.constr.				(0.062)	(0.070)
Log variance of	0.116***	0.113***	0.113***	0.114***	0.100***
random effect	(0.042)	(0.040)	(0.041)	(0.041)	(0.041)
Log likelihood	-4138.051	-4120.338	-4119.974	-4115.622	-3381.151
Intra-class	0.034	0.033	0.033	0.033	0.029
Correlation[1]	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)

Note. Number of observations: 6,901; number of countries: 37. Relative odds ratios (OR), OR>1 indicates positive effect, OR<1 indicates negative effect. Standard errors in parenthesis; CE – commercial enterprise, SE – social enterprise; *** p<0.001, ** p<0.01, * p<0.05, + p<0.10; the likelihood ratio test comparing Model 0 (without the hypotheses-related predictors) with Model 1 renders $\chi^2(5) = 26.63$, which is significant at p<0.001. [1] The intra-class correlation is a measure of residual, i.e. unexplained country-level variation.

Figure 1

Multi-level Research Framework and Hypotheses

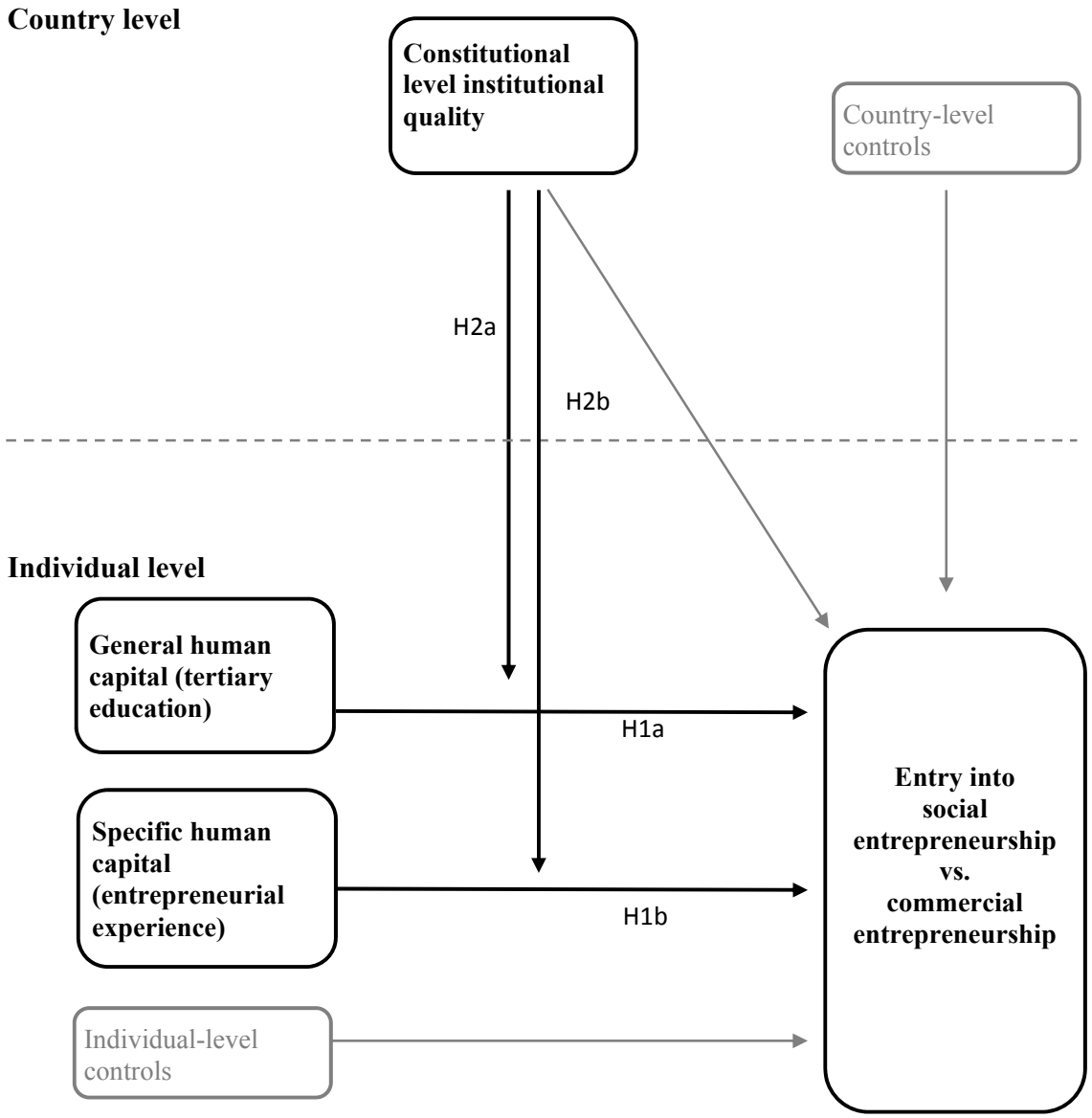

Figure 2

Interaction Effect Specific Human Capital (Entrepreneurial Experience) and Constraints on the Executive (Institutional Quality) (H2b, Table 5, Model 3)