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Explaining the Variation in Levels of Social Entrepreneurship Through the Lens of The Institutional Framework and The Theory of Planned Behaviour.

Name student: Jean Sunil

Student ID number: 523906

Supervisor: Tilbe Atav

Second assessor: Marcus Rosch

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The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam

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Introduction

Social entrepreneurship is a concept that can loosely be defined as, "engaging in entrepreneurship with the intention of addressing some form of underlying societal problem". The phenomenon of social entrepreneurship is fascinating as it questions what is traditionally accepted as the main goal of entrepreneurship – profit maximization. While the 'traditional' entrepreneur engages in enterprise to enrich himself and those around him, the social entrepreneur engages in enterprise to target and hence, resolve problems that exist within a local context. "The solutions that social entrepreneurs validate in their local context often gets replicated in other geographies and thus, the phenomenon of social entrepreneurship has profound implications in the economic system: creating new industries, validating new business models, and redirecting resources to neglected societal problems" (Santos, 2012, p. 1). In a world that is plagued with an abundance of unaddressed or neglected societal issues, social entrepreneurs see nothing but a world of opportunities.

According to the Global Entrepreneurship Monitor's (GEM) 2015 special report on social entrepreneurship, the average prevalence rate of social entrepreneurial activity among nascent entrepreneurs worldwide is 3.2%, and ranges from 0.3% in South Korea to 10.1% in Peru, Bosma et al. (2016). Moreover, there is a significant variance in the levels of social entrepreneurial activity across different countries. Understanding the determinants of social entrepreneurship would explain this variance, and this insight could be crucial for future policymakers seeking to influence social entrepreneurial activity to address societal problems that have been neglected for years.

There are many papers that attempt to explain this variance in levels of social entrepreneurial activity across countries. Generally, these papers utilize frameworks grounded in existing theories and diverge into two main approaches – one which utilizes the institutional framework and the other which utilizes the theory of planned behavior. In its essence, papers that utilize the institutional framework examine factors which affect the relative payoffs that society offers to those engaging in social entrepreneurship and papers that utilize the theory of planned behaviour

examine factors that determine a person's intentions and actions. Both theories will be elaborated upon in the section covering the theoretical framework.

It is worth nothing that many of these papers utilize case studies and other qualitative methods to arrive at their findings. Moreover, there is a need for findings with high statistical power within the field social entrepreneurship. The research of this paper utilizes findings from influential papers in the field of social entrepreneurship and the rich quantitative dataset created by the Global Entrepreneurship Monitor to arrive at robust and meaningful conclusions on a few of the determinants of social entrepreneurial activity across the world. More specifically, this paper attempts to answer the following research question:

"Can the variance in social entrepreneurial activity across countries be explained by the institutional framework or the theory of planned behaviour?"

The rest of this paper will be structured as follows. Section 1 examines previous literature to arrive at testable hypotheses. Section 2 covers the data and methodology. Section 3 presents the results of the analysis and Section 4 concludes.

Theoretical Framework

The definition and measurement of social entrepreneurship.

Despite the increasing importance of social entrepreneurship as a phenomenon, ambiguity surrounds the definition of the concept in literature. In general, definitions are derived from the combination of the concepts of entrepreneurship and social missions (Santos, 2012). For instance, Mair and Marti (2006) define social entrepreneurship as a process involving the innovative use and combination of resources to pursue opportunities to catalyse social change whereas Urban and Kujinga (2017) define social entrepreneurs as those that attack social problems caused by shortcomings in existing markets and social welfare systems to create systemic changes and

sustainable improvements. The lack of consistency in definitions entails that the boundaries with other fields of study remains fuzzy (Santos, 2012).

Lepoutre et al. (2013) proposed and tested a methodology for the first theory-based data collection approach for social entrepreneurial activity on a global scale. The authors of this paper made use of Mair and Marti's (2006) definition of social entrepreneurship and so, for the sake of consistency, we will adopt this definition for the remainder of this paper. To gather information on social entrepreneurial activity, a series of questions were added to the end of the existing Global Entrepreneurship Monitor (GEM) Adult Population Survey (APS) questionnaire (Lepoutre et al., 2013).

The GEM is a multi-country initiative with the explicit objective of facilitating cross-country comparisons of entrepreneurial activity by using the exact same measurement approach in all countries involved in the study. Each year, GEM surveys representative population samples of at least 2000 randomly selected adults in each participating country. The GEM is renowned for its database and has a highly credible track record. According to their website, GEM has collected over 22 years of data, by conducting 200,000+ interviews annually. So far, GEM has published reports in 2009 and 2015 that gauge the levels of social entrepreneurship across the world.

The institutional framework.

Within literature examining the variance in levels of entrepreneurship, a factor that is often mentioned is the institutional framework of a country. William J Baumol was the first to define this concept. In its essence, Baumol (1996) hypothesized that the allocation of entrepreneurial activity between productive and unproductive entrepreneurship is heavily influenced by the relative payoffs society offers to such activities. Moreover, this hypothesis entails that different institutional environments will direct entrepreneurial efforts toward different types of activities, and that therefore the institutional context in which entrepreneurs are embedded is likely to affect the type of entrepreneurship an individual engages in (Bowen & De Clercq, 2008). The institutional framework theory has been verified empirically across many different studies.

The institutional configuration of a country can be broken down into formal and informal institutions. According to Stephan et al. (2015), formal institutions refer to the objective constraints and incentives arising from government regulation of individual and organizational actions whereas informal institutions refer to more implicit, slowly changing, culturally transmitted and socially constructed institutions.

The institutional framework and social entrepreneurship.

Empirical evidence surrounding the impact of the institutional framework on social entrepreneurship is mixed. An examination of the literature reveals that many studies examining the impact of the institutional framework on levels of social entrepreneurship utilize case studies and other descriptive techniques to arrive at conclusions. Quantitative studies with robust findings are scarce. In their examination of the state of research surrounding social entrepreneurship, Mair and Marti state, "Existing studies [on social entrepreneurship] are typically based on anecdotal evidence or case studies, applying diverse research designs and methods, and introducing insights from other disciplines." (Mair & Marti, 2006, p. 1) Moreover, there is a need for findings with high statistical power within the field of social entrepreneurship.

For instance, Seelos et al. (2011) use several case studies to explore how variation of local institutional mechanisms shapes the levels of poverty in different communities and how this relates to variations in the emergence of socially entrepreneurial organizations. More specifically, the authors of this paper examine BRAC from Bangladesh and SEKEM from Egypt, two very successful examples of social enterprises, to validate their model. The model proposed in this paper postulates that the opportunity space for social entrepreneurs in a local context is determined by the regulative, normative and cognitive institutional mechanisms in that specific context, and that these institutional mechanisms are shaped by the strategies adopted by society to alleviate poverty and other social needs.

On a similar note, Urbano et al. (2010) utilize a research design based on case-studies to develop theoretical propositions and to analyse how the institutional perspective affects the emergence and implementation of social entrepreneurship in the Spanish region of Catalonia. The findings of this

paper indicate that both formal and informal institutional factors are important in explaining the variation in levels social entrepreneurial activity. However, the authors do mention that informal institutional factors are more important than formal institutional factors as they affect both the emergence and implementation of social entrepreneurship.

Finally, Mair and Marti (2009) conduct field interviews and analyze the activities of BRAC in Bangladesh and its efforts to alleviate poverty to advance understanding of why institutional voids originate and to unpack institutional processes. The authors of this paper find that that political, social, cultural and market institutional elements influence the emergence and implementation of social enterepeneurship. Moreover, despite using rich qualitative data to arrive at their respective conclusions, these papers lack externally valid findings, meaning that the findings of these papers cannot be extrapolated to other countries or institutional frameworks.

Some papers, however, make use of large data sets and arrive at statistically significant findings. Estrin et al. (2013) for instance, apply bivariate discrete choice multilevel modelling to population-representative samples in 47 countries and find that the variance in social entrepreneurial activity can be explained by the arbitrary power of government and the level of government activism in a country. Urban and Kujinga (2017) utilises a cross-sectional data set from South Africa and find that the regulatory environment has a positive and significant impact on social entrepreneurial intentions and hence, the levels of social entrepreneurship in a country. Finally, Sahasranamam and Nandakumar (2020) utilises Global Entrepreneurship Monitor (GEM) data and find that financial, human, and social capital are all significant factors in explaining the likelihood of social entrepreneurship entry.

The papers examined here illustrate that, formal institutional factors, as classified by the regulatory environment, and, informal institutional factors, as classified by culture or social capital can significantly affect the levels of social entrepreneurial activity in a country. More specifically, evidence points to the idea that countries with sound regulatory environments, and supportive cultures display higher levels of social entrepreneurial activity. As previously mentioned however, only a few of these papers contain findings that are externally valid. Moreover, to find additional support for this relationship between the institutional factors this paper will examine the predictive

power of the regulatory environment and social capital on social entrepreneurship. These findings lead us to our first two hypotheses:

Hypothesis 1: The quality and perceptions of the regulatory environment in a country, positively affects the levels of social entrepreneurship in that country.

Hypothesis 2: The social capital in a country, positively affects the levels of social entrepreneurship in that country.

The Theory of Planned Behaviour

The theory of planned behaviour was first coined by Ajzen (1991). At the most basic level of explanation, the theory suggests that behavior is a function of salient information, or beliefs, relevant to the behaviour. These salient beliefs are in turn expected to influence an individual's propensity to engage in a certain behaviour. These salient beliefs are classified into three kinds: behaviour beliefs which are assumed to influence attitudes toward the behaviour, normative beliefs which constitute the underlying determinants of subjective norms, and control beliefs which provide the basis for perceptions of behavioural control. From a general view, "application of the theory of planned behaviour to a particular area of interest provides a host of information that is extremely useful in any attempt to understand these behaviours…" (Ajzen, 1991, p. 28).

Subjective norms and behavioural control are both abstract terms and so it is worth delving into the definition of these two terms in more depth. Hockerts (2017) defines subjective norms as the normative beliefs about persons in an individual's environment. These beliefs are expected to exert social pressure, which can strengthen or diminish intentions and in turn, impact certain behaviours. Behavioural control can be differentiated into internal and external control. Internal control is typically equated with a person's self-efficacy, whereas external control refers to a person's beliefs about the support or opposition they will find in the environment that they inhabit (Hockerts, 2017).

Krueger et al. (2000) tested the overall statistical fit of the theory of planned behaviour in the context of entrepreneurship. This meta-analysis conducted in this paper empirically shows that intentions successfully predict behaviour, and that attitudes successfully predict intentions. The authors of this paper also mention that across a wide range of studies relating to a wide variety of types of behaviours and intentions to engage in those behaviours, attitudes explain over 50% of variance ($R^2 = 0.5$) in intentions and intentions explains 30% or more of the variance ($R^2 = 0.3$) in behaviour. Furthermore, the validity of the theory of planned behaviour, in the context of entrepreneurship, has been tested across many papers.

The Theory of Planned Behaviour and Social Entrepreneurship.

There are multiple papers that utilise the theory of planned behaviour to explain the variance in levels of social entrepreneurship in a country or across countries. Tiwari et al. (2017a) utilise a sample of 390 people to identify social entrepreneurial intention among undergraduate students in the Indian context by using the theory of planned behaviour as the research framework. In this paper, the authors made use of a 72 item questionnaire that measured emotional intelligence, creativity, and moral obligation, attitude toward becoming a social entrepreneur, subjective norms and perceived behavioural control. The result of this paper shows that the proposed model explained 47% of the variance in social entrepreneurial intention. In the same year, the authors of this paper published a separate paper on social entrepreneurial attitudes and social entrepreneurial intentions. This time, however, a 50 item questionnaire was used to measure emotional intelligence, self-efficacy, attitude toward becoming a social entrepreneur and social entrepreneurial intentions. The proposed model in this study explained 42% of the variance in social entrepreneurial intention, Tiwari et al. (2017b). It is interesting to note here that despite collecting data on fewer variables, the second paper was able to explain roughly the same amount of variance in social entrepreneurial intentions.

Other papers that utilise the theory of planned behaviour, extend the model to include additional variables, to explain a larger portion of the variance in intentions. For instance, Hockerts (2017) adopts Mair and Noboa's (2006) adaptation of the theory of planned behaviour. Mair & Noboa propose the use of empathy (as a proxy for attitude towards behaviour), moral judgement (as a

proxy for social norms), self-efficacy (as a proxy for internal behavioural control) and perceived presence of social support (as a proxy for external behavioural control). Hockerts (2017) extend this model by including prior experience with social problems as an additional variable. Hockerts (2017) reported statistically significant effects for all of the variables included in the model.

Kruse et al. (2019) integrates the theory of planned behavoiur and basic human values theory to explain social entrepreneurial intention. Basic human values theory postulates that there are 10 personal values which affect how people view situations, consider alternatives, and eventually act. Ultimately, the authors of this paper find that self-transcendence, self-enhancement, conservation, and openness values had a positive direct effect on social entrepreneurial intention. Finally, Zaremohzzabieg et al. (2019) conduct a meta-analysis to examine the applicability of the theory of planned behaviour in predicting social entrepreneurial intention. The results of this meta-analysis found that bonding social capital, weak-tie social capital, perceived self-efficacy and behavioural controls were all robust correlates of social entrepreneurial intention. The paper concludes by stating that the theory of planned behaviour is an effective model that can be useful to study the predictors of social entrepreneurial intentions.

Furthermore, there is a well-researched link between the theory of planned behaviour and social entrepreneurial intentions. Research papers that examine this link diverge into two main strands; one which uses the theory of planned behaviour in its original form and one which extends the theory of planned behaviour by including other factors to capture a larger portion of the variance in social entrepreneurial activity. To summarize, attitudes toward a certain behaviour, social norms and both internal and external behavioural controls are all robust correlates of social entrepreneurial activity. Moreover, this research paper will only test the link between internal and external behavioural controls due to the inherent difficulty in collecting data for other factors. It is expected that levels of higher levels of self-efficacy or independence at the individual level, and, that more supportive social cultures are associated with higher levels of social entrepreneurial intentions. This leads us to hypothesis 3 and 4.

Hypothesis 3: Internal behavioural control, as classified by perceived self-efficacy, positively affects the level of social entrepreneurship in a country.

Hypothesis 4: External behavioural control, as classified by a socially supportive culture, positively affects the level of social entrepreneurship in a country.

Gender and Social Entrepreneurship

Hechavarria et al. (2012) examine whether women are more likely to pursue social and environmental entrepreneurship. The paper makes use of a 52-country dataset drawn from the 2009 Global Entrepreneurship Monitor report on social entrepreneurship and basis its model on gender role theory. Gender role theory, in its essence says that individuals of a certain gender are expected to adopt roles that are generally accepted in society, in order to gain acceptance from the society in which they live in, Hechevarria et al. (2012). The authors of this paper argue that hegemonic masculinity (a culturally idealised form of masculine character) explains why male entrepreneurs are more likely than female entrepreneurs to exhibit goals aligned with economic value creation (or profit maximization) and why female entrepreneurs are more likely than male entrepreneurs to emphasize social and environmental value creation.

The authors of this paper run three regression models which utilize dependent variables that capture entrepreneurial activity undertaken with economic, social, and environmental value goals and a bivariate independent variable which captures the self-reported biological sex of respondents (n = 10,362). Additional independent variables were included to control for age, income, education, and country of residence. The result of this paper suggests that females are more likely to engage in social and environmental entrepreneurial activity than males.

This specific relationship between gender and social entrepreneurial activity has not been replicated by other papers. Moreover, due to the relatively small sample size of 10,000 individuals, it is possible that this finding was spurious. Further, to test this finding with a larger sample size, this paper will examine the claim that female entrepreneurs are more likely than male entrepreneurs in engage in social entrepreneurship. More formally, the fifth and final hypothesis of this paper is:

Hypothesis 5: Females are more likely to engage in social entrepreneurship than men.

Data and Methodology

Overview of data sources and variables used

To test hypothesis 1-5, a multilevel logistic regression analysis will be used with individual data (level 1) that is nested within different countries (level 2). Individual level data is obtained from the from Adult Population Survey (APS) that is conducted by the Global Entrepreneurship Monitor annually. In the year 2015, the survey was altered to include additional questions to gauge levels of social entrepreneurship. Further, this dataset is available online on the Global Entrepreneurship Monitor's website. From this dataset, the variables; 'SE_ALL1', 'knowent', 'subskill', 'country', 'gender' and 'age' are collected.

The binary variable 'SE_ALL1' is a broad measure of social entrepreneurship which takes on the value 1 if an individual indicates that they are involved in social entrepreneurial activity as a nascent entrepreneur or owner/manager. This variable will be utilised as the dependent variable. The binary variable 'knowent', takes on the value 1 if an individual indicated that they knew someone who started a business in the past two years. This variable will be utilised as an independent variable, as a proxy for social capital (informal institutional factor). Utilising this variable as a proxy for social capital is in line with the approach of Sahasranamam and Nandakumar (2020). The binary variable 'subskill' is utilised as a proxy for entrepreneurial self-efficacy. This variable takes on the value of 1 if an individual indicated that they had the required knowledge or skills to start a business.

The variables 'gender', and 'age' will be used as individual-level control variables. It is important to account for these variables as they are expected to affect the level of social entrepreneurial activity. The approach of controlling for these variables is consistent with previous works that utilise multilevel analysis techniques in the context of social entrepreneurship (Sahasranamam & Nandakumar, 2020; Stephan et al., 2015).

Data on country-level predictors were obtained from Worldwide Governance Indicators, Global Leadership & Organizational Behaviour Effectiveness (GLOBE) project and the Worldbank. Overall, three different country-level predictors were collected: 'rule of law', 'socially supportive culture' and 'GDP per capita in 2015',

The discrete variable 'rule of law' is obtained from the Worldwide Governance Indicators database. This variable will be used as a proxy for formal institutional factors, and it as index which captures the perceptions of the extent to which the general populous of a country have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. This variable can take on values within the range -2.5 and +2.5, with -2.5 describing a country whose inhabitants fail to abide by and have no confidence in the rules of society. A value of +2.5 in this index would describe the exact opposite.

'Socially supportive culture' is an index based on GLOBE project data. This measure consists of an average of two dimensions – humane orientation and assertiveness, with the latter being reverse scored. Taken from GLOBE's website, the variable humane orientation captures "the degree to which a collective encourages and rewards individuals for being fair, altruistic, generous, caring, and kind to others". The variable, assertiveness captures "the degree to which individuals are assertive, confrontational, and aggressive in their relationship with others". Both of these variables can take on any value within a range of 0 to 7.

The variable 'assertiveness' is reverse scored, meaning that every value is multiplied by a factor of -1. This is done as assertiveness is negatively with a socially supportive culture (Stephan et al., 2015). Furthermore, after reverse-scoring, higher values for socially supportive culture indicate higher humane orientation and lower assertiveness. Utilising the variable 'socially supportive culture' as a proxy for weak-tie social capital is in line with Stephan et al. (2015) in which the authors found significant predictive power of this variable on social entrepreneurial intention. Finally, the variable 'GDP per capita in 2015' was obtained from the World Bank's database. This

variable captures the gross domestic product per capita of a particular country in the year 2015 and will be used as a control variable.

Overall, data on 181,281 individuals from 60 different countries was collected from the Global Entrepreneurship Monitor's 2015 survey. Observations with missing data were removed from the data set. This resulted in the sample size reducing to 171,529 individuals. In addition to this, individuals in countries with missing data on country-level predictors were dropped. Finally, individuals younger than the age of 18 and older than the age of 64 were removed, as this age threshold typically represents the working population in a country. This brought the baseline sample to 109,336 individuals from 34 countries. Descriptive statistics are presented in Table 1.

Methodology

As explained above, individuals within the dataset are nested within countries. An implication of such a data setting is that observations are likely to be interdependent. Or, in other words, it is expected that individuals nested within a specific country are more likely to display similar levels of engagement in social entrepreneurship than individuals nested in a different country. Further, to disentangle the within-country effects (the extent to which individual characteristics influence the levels of engagement in social entrepreneurship by an individual) from the between-country effects (the extent to which country-level characteristics influence the levels of engagement in social entrepreneurship by an individual), a multilevel modelling design will be used.

Table 1: Summary and Descriptive Statistics

Country	N	Social Entrepreneurship (% involved)	Social capital (% who know entrepreneurs)	Entrepreneurial self-efficacy (% of people)	Rule of law	Socially supportive cultural norms	GDP per capita (in 2015 USD)	Gender (% of females)	Age
United States	2,113	11.35	30.15	55.94	1.60	4.11	56,762.7	49.98	41.49
Egypt	2,466	3.53	18.57	41.08	-0.60	4.45	3,562.9	49.76	39.03
South Africa	2,728	3.19	33.25	46.44	0.09	4.48	6,259.8	51.21	37.59
Greece	1,955	1.53	27.97	47.16	0.28	4.64	18,083.9	49.97	40.31
Netherlands	1,711	4.73	37.52	45.30	1.94	4.59	45,193.4	49.44	42.09
Spain	23,499	1.30	33.44	44.38	0.91	4.35	25,742.4	49.55	42.55
Hungary	1,895	11.40	31.40	38.42	0.41	4.57	12,720.7	50.01	42.13
Italy	1,929	5.81	28.82	31.42	0.31	4.38	30,242.4	50.01	44.11
Switzerland	1,795	5.85	27.91	42.28	1.95	4.67	84,776.1	49.81	41.85
United Kingdom	7,626	5.15	28.82	42.18	1.81	4.37	45,404.6	51.30	40.35
Sweden	3,011	6.74	38.79	36.20	2.03	4.52	51,545.5	49.32	41.29
Poland	1,789	7.60	43.77	56.06	0.78	4.20	12,578.5	50.08	41.78
Germany	3,789	3.01	25.26	40.41	1.79	4.69	41,103.3	49.67	42.93
Mexico	4,359	2.06	47.17	45.70	-0.45	4.16	9,616.6	51.34	36.70
Argentina	2,458	5.00	33.20	61.23	-0.77	4.67	13,789.1	52.16	38.80
Brazil	1,963	2.34	52.52	58.48	-0.15	4.89	8814.0	50.74	37.90
Colombia	3,662	10.51	29.57	60.19	-0.27	4.59	6,175.9	52.46	38.24
Malaysia	1,964	1.78	36.91	26.27	0.50	3.85	9,955.2	46.38	37.66
Australia	1,712	11.16	33.29	48.25	1.83	4.39	56707.0	50.00	40.71
Indonesia	5,326	2.52	71.05	65.85	-0.42	3.72	3331.7	50.04	37.10
Philippines	1,973	11.35	46.27	68.78	-0.34	3.61	3001.0	61.53	37.88
Thailand	2,968	3.03	33.25	46.56	-0.15	4.27	5,840.1	51.25	39.54
China	3,231	6.53	50.97	29.03	-0.41	3.44	11,188.3	50.08	38.78
India	3,230	6.44	37.28	42.01	-0.05	3.76	1605.6	48.70	36.26
Iran	3,021	1.82	44.32	63.22	-0.92	3.81	5200.7	49.94	35.76
Morocco	2,016	1.19	30.85	48.07	-0.09	4.54	2,875.3	49.75	36.10
Portugal	1,953	4.51	28.47	48.60	1.13	4.37	19,250.1	51.51	30.21
Ireland	1,939	10.99	33.42	44.61	1.76	4.24	62,012.5	52.19	40.41
Finland	1,953	5.99	45.06	37.28	2.09	4.57	42,801.9	49.31	41.72
Slovenia	1,935	4.75	37.47	48.63	0.97	3.83	20,890.2	48.99	42.12
Guatemala	2,143	5.13	31.26	59.96	-0.95	4.31	3,994.6	52.03	34.09
Ecuador	1,923	2.60	39.57	72.28	-1.03	4.31	6,124.5	50.49	36.63
Kazakhstan	1,658	3.14	63.93	53.61	-0.44	4.39	10,510.8	52.89	37.54
Israel	1,643	12.84	54.11	42.24	1.16	4.43	35,808.4	51.37	39.63

Notes: Columns 3, 4, 5, 9 and 10 report mean values. Columns 6, reports values for the index rule of law. Column 7 reports values for the index socially supportive cultures. Colum 8 reports the GDP per capita in the year 2015. All values are reported to 2 decimal places.

As mentioned in the data section, our dependent variable of choice is the variable 'SE_ALL1'. This variable is a binary indicator. An implication of utilising such an outcome variable is that a linear regression cannot appropriately model the data. This is because a linear regression allows

for the predicted value of the outcome variable to take on any value between -∞ and +∞. Furthermore, running a linear regression analysis using a binary outcome variable could potentially lead to nonsensical coefficient estimates. For this reason, instead of running a multilevel linear regression, we will utilise a multilevel logistic regression. The general model for a multilevel logistic regression is as follows:

$$(1)\ Logit\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_{00} + \beta_1 x1_{i1} + \cdots + \beta_n xN_{in} + \gamma_1 X1_j + \cdots + \gamma_2 XN_j + u_{0j}$$

π_i represents the probability of individual scoring 1 on the outcome variable and 1 - π_i represents the probability of an individual scoring 0 on the outcome variable. xN_{in} represents the value observed value of the level 1 independent variable xN for individual i from country j. XN_j represents the observed value for level 2 independent variable XN from country j. The coefficient of each independent variable is calculated using Maximum Likelihood Estimation (MLE). For ease of interpretation, these coefficients will be transformed into an odds ratio by taking the exponent of the coefficient. An odds ratio, in the context of this paper, can be interpreted as the ratio of the probability of an individual to engage in social entrepreneurship and the probability to not engage in social entrepreneurship. Further, a statistically significant odds ratio would confirm the explanatory power of a variable.

$$(2)\ Logit\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_{00} + \beta_1 knowent_{ij} + \beta_2 gender_{ij} + \beta_3 age_{ij} + \gamma_1 Ruleoflaw_j + \gamma_2 GDPin2015_j + u_{0j}$$

$$(3)\ Logit\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_{00} + \beta_1 suskill_{ij} + \beta_2 gender_{ij} + \beta_3 age_{ij} + \gamma_1 sociallysupportiveculture_j + \gamma_2 GDPin2015_j + u_{0j}$$

Two instances of the multilevel logistic regression will be run. The first model will be used to test the applicability of the institutional framework in explaining the variance in levels of social

entrepreneurship. Moreover, significant coefficient estimates in model 1 (refer to equation 2) would verify the explanatory power of formal and informal institutional factors, thereby confirming hypothesis 1 and 2. The second model (refer to equation 3) will be used to test the applicability of the theory of planned behaviour in explaining the variance in levels of social entrepreneurship. Here, significant coefficient estimates would verify the explanatory power of internal and external behavioural controls, thereby confirming hypothesis 3 and 4. Both models will be run with control variables 'age', 'gender', and 'GDP in 2015'. A positive and significant coefficient for the variable 'gender' in both models would verify the explanatory power of gender, thereby confirming hypothesis 5.

Results

Model 1 of Table 2 displays the results of the model that was run to test the predictive power of the institutional framework, or hypothesis 1 and 2. Model 2 of Table 2 displays the results of the model that was run to test the predictive power of the theory of planned behaviour, or hypothesis 3 and 4. The control variable gender which was included in both models was run to test the predictive power of gender role theory, or hypothesis 5.

The variable 'Rule of law' (the proxy for formal institutional factors) had a positive, but statistically insignificant effect on the probability of an individual to engage in social entrepreneurship. More formally, if a country achieved an increase of 1 unit on the Rule of law index, the odds of an individual living in that country becoming involved in social entrepreneurship as a nascent entrepreneur or owner/manager changes by a factor 1.040. Moreover, the lack of significance of this coefficient estimate does not provide support for hypothesis 1.

The proxy included for social capital (whether an individual indicated that they personally knew someone who started a business in the last 2 years) had a positive and statistically significant effect on the probability of an individual to engage in social entrepreneurship. More formally if an individual indicated that they knew someone who started a business in the last 2 years, the odds of that individual being involved in social entrepreneurship as a nascent entrepreneur or owner/manager changes by a factor of 2.788. Further, this significant effect provides support for hypothesis 2.

Table 2: Results of multilevel logistic regression (2) and (3)

	Model 1 (Institutional framework)		Model 2 (Theory of planned behaviour)	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Gender	-0.172***	0.842***	-0.134***	0.873***
Age	0.005***	1.005***	0.000	1.000
GDP per capita	0.000	1.000	0.000	1.000***
Social capital (informal institutional factor)	1.025***	2.788***		
Rule of law (formal institutional factor)	0.039	1.040		
Entrepreneurial self-efficacy (internal behavioural control)			0.956***	2.602***
Socially supportive culture (external behavioural control)			-0.450	0.637
Constant	-3.812***	0.022***	-1.876	0.153
Log likelihood	-18719.73		-18,142.07	
X^2 statistic	1196.30***		926.62***	
Observations	109,336		109,336	

Notes: This table indicates the coefficient estimates for the multilevel logistic regressions that were conducted. The dependent variable for both models was the binary variable 'SE_ALL1'. All values are reported in 4 decimal places. The star symbols indicated beside the regression coefficients represent their respective significance levels by measure of a two-sided t-test (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$).

In model 2, the variable ‘entrepreneurial self-efficacy’ which was included as a proxy for internal behavioural control, had a positive and significant effect on the probability of an individual to engage in social entrepreneurship. More formally, if an individual indicated that they had the knowledge and skills required to start their own business, the odds of that individual being involved in social entrepreneurship as a nascent entrepreneur or owner/manager changes by a factor of 2.602. The significance of this coefficient estimate provides support for hypothesis 3. The variable ‘socially supportive culture’, which was included as a proxy for external behavioural control, did not have any significant effect on the probability of an individual to engage in social entrepreneurship. This lack of significance does not support hypothesis 4.

Finally, the variable ‘gender’ had a negative and significant effect (in both models) on the probability of an individual to engage on social entrepreneurship. More formally, the odds of

individual being involved in social entrepreneurship reduced by a factor of roughly 0.85 if that individual was a female. The significance of this effect does not support hypothesis 5.

Discussion and Conclusion

The theories of the institutional framework and planned behaviour are often discussed in the field of social entrepreneurship but rarely tested empirically. This paper answers the call for research on social entrepreneurship that utilises empirical data over anecdotal evidence or case studies. The findings of this paper strongly support the notion that variance in levels of social entrepreneurship across countries can be explained by accounting for formal and informal institutional factors and internal behavioural controls. These findings ultimately inform policymakers that wish to influence the levels of social entrepreneurship. Policymakers can utilise the insights from this paper to, for instance, increase investment in entrepreneurship education, thereby increasing levels of perceived self-efficacy in the context of entrepreneurship. Positively influencing perceived self-efficacy would then in turn, positively affect the general populations involvement in social entrepreneurship, which would assist in relieving societal problems like poverty and pollution. This, as a knock-on effect, can improve the standards of living of the population in the long run.

On the surface it appears the institutional framework is better at modelling the variance in levels of social entrepreneurship than the theory of planned behaviour. The theory of planned behaviour is supposed to explain intentions for a particular behaviour, and in turn intentions are supposed to explain the variance in behaviours. Moreover, the lack of significance in coefficient estimates in the model testing the theory of planned behaviour is likely attributable to the choice of variables in this paper. Our dependent variable of choice was a broad measure which captured actual involvement in social entrepreneurship, and not intentions. Utilising a dependent variable as a proxy for intentions to start a social enterprise might have led to significant explanatory power for the independent variables that were included in model 2.

The point raised above touches on one of the main limitations of this paper. In collecting data, variables were only included if they were available on a database online. This means that the theory of planned behaviour and the institutional framework could not be tested in its full form. For instance, in the theory of planned behaviour, the salient beliefs that determine a person's intentions and actions are behaviour beliefs, normative beliefs and control beliefs. Due to the lack of data available on the internet, only two forms of control beliefs were included in the model, with behaviour and normative beliefs being completely excluded. Similarly, in testing the institutional framework, only two variables were included to capture the formal and informal institutions in a particular country. While this can model reality to some extent, the choice of two variables overly simplifies the complex nature of institutional frameworks that influence behaviour.

In addition to this, omitted variable bias is a significant limitation of this paper. It is impossible to know and account for all the variables that affect the coefficient estimates of the independent variables included in models 1 and 2. Further, it is difficult to comment on the accuracy of the coefficient estimates. Finally, many observations from the initial database obtained from the Global Entrepreneurship Monitor were dropped as supplementary data on country-level identifiers could not be found. All in all, data on 72,890 individuals from 26 different countries were dropped. If these observations were included in the final data set, coefficient estimates would have been more precise.

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