Master Thesis U.S.E.

The Impact of Institutional Presence Promoting Human Rights on Social Entrepreneurship.

Abstract

This paper seeks to explain the relationship between institutional presence or absence— represented by education, healthcare access and quality, and gender equality— and social entrepreneurship. The research was conducted through a multilevel logistic regression, using a dataset consisting of 326,165 individuals from over 50 countries, and integrating variables from the Global Entrepreneurship Monitor, the Global Gender Gap Index, the Healthcare Access and Quality Index, and the Fragile States Index. While healthcare access did not have a significant impact, graduate education increases the likelihood of engaging in social entrepreneurial activities. Regarding gender equality, the study finds that higher levels of gender equality do not independently influence social entrepreneurship. However, this study provides evidence that in countries with higher gender equality, there is a positive effect on social entrepreneurship led by women. This highlights the importance of closing the gender gap to foster environments that promote the participation of women in social entrepreneurship and increase the female representation in economic activities.

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1. Introduction

Up to this day women still face inequality in the workplace, ranging from gender representation to work-related authority, where women experience lower financial benefits from holding authoritative positions despite having similar levels of education, occupational experience, prestige, and family circumstances such as marital status and parental responsibilities, being less likely than men to hold supervisory positions at work (Huffman & Cohen, 2004). In traditional entrepreneurship gender imbalance arises from early stages, such as access to funds for female founders, resulting in women steering away from founding ventures (Guzman & Kacperczyk, 2019). Evidence has shown that for social entrepreneurship the gender gap is usually smaller than the gender gap present in traditional entrepreneurship, suggesting that the promotion of social entrepreneurship is a powerful tool to increase female participation in the labour market in general (Huysentruyt, 2014), contributing to greater gender equality, empowerment, and socioeconomic development.

Social Entrepreneurship consists in the pursuit of sustainable solutions to neglected problems that result in positive externalities (Santos, 2012), overtaking entrepreneurial activity with an inherent social mission (Austin et al., 2006) and it builds the bridge between enterprise and benevolence (Roberts and Woods, 2005). It is a rising topic between researchers, policymakers (Tan et al., 2005) and the business community (Thompson, 2008) because, in contrast to non-profit organizations' goal to address market and government failures, social enterprises' purpose is to address the issues that for-profits, government, and non-profits cannot address (Sud et al. 2008), hence its importance. Social entrepreneurship seems to be better established in developed countries than in less developed ones, while the demand for social entrepreneurship appears to be larger in developing countries (Puumalainen et al., 2015).

Institutional frameworks play a pivotal role in shaping the landscape for social entrepreneurship. While formal institutions, such as legal frameworks and regulatory bodies, provide explicit guidelines, informal institutions encompass social norms, customs, and traditions that subtly influence behaviour (Zenger et al., 2002). Yet, the dynamics of informal institutions and their impact on social entrepreneurship remain less explored, with scholarly

attention often focused on formal structures (Wang et al., 2018). Recognizing the essential role of institutions in facilitating economic activity, governments must stablish supportive environments through policies promoting economic growth and ensuring property rights (Woodruff, 2001; Galindo-Martín et al., 2020).

The influence of institutions on social entrepreneurship extends beyond bureaucracy and access to funds, shaping its trajectory and impact on societal development (Puumalainen et al., 2015). Despite significant contributions to research from both developed and developing countries, identifying the optimal institutional conditions for fostering social entrepreneurship remains a paradox (Santos, 2012). The coexistence of thriving social entrepreneurship in diverse institutional contexts leaves space for further analysis to explore the underlying mechanisms driving its success (Deng et al., 2019). International institutions influence national institutions, like the United Nations dictating in the Universal Declaration of Human Rights that every human is entitled to health, education, choice of employment and have equal rights against the law no matter race, belief, or gender. It is the job of national institutions to make sure the international principles are met at a domestic level.

This paper seeks to investigate the interplay between institutional presence, particularly human rights in the context of education, healthcare access, sanitation and gender equality fostered by the state, and the development of sustainable entrepreneurship initiatives led by women in 57 countries with variation in said institutional metrics at an individual and country level. Based on the paradox between the institutional void and institutional support fighting forces and social entrepreneurship, this study seeks to answer the following research question:

RQ: To what extent does human rights institutional presence influence the development of sustainable entrepreneurship initiatives led by women?

By examining the interplay between institutional support, social entrepreneurship, and gender equality, this research will contribute to existing literature on how social enterprises and institutional framework, particularly those related to human rights, can introduce a new

institutional logic and institutional structure for societal wellbeing (Chatzichristos & Nagopoulos, 2019), how formal institutions -typically easier to reform in the short run (Williams et al., 2017)- promote social entrepreneurship in general to prevail over time (Galindo-Martín et al., 2019), how the level of education increases entrepreneurial skills (Oosterbeek et al., 2010; Almahry et al., 2021) and how context-specific policies are needed to be implemented in the different social contexts (Deng, et al., 2019) to motivate choosing social entrepreneurship as a career (Swain & Patoju, 2022).

Possible practical contributions of this research include offering valuable insights for policymakers at both national and regional levels, since understanding the specific institutional conditions that foster social entrepreneurship can lead to targeted policy recommendations aimed at creating an environment that promotes social entrepreneurship, and therefore increase job opportunities for women. For instance, if poor institutional quality is found to positively impact social entrepreneurship in developing economies, policymakers may consider specific interventions to support social entrepreneurs in such contexts. In addition, the cross-cultural perspective can help better identify common patterns to tailor formal and informal institutional interventions to the unique characteristics of each country or region.

The subsequent section offers an outline of the arguments concerning the paradox of institutional support and institutional void, social entrepreneurship in general and social entrepreneurship led by women in particular. Based on these theories, three hypotheses will be tested. Following that, the proposed methodology is explained in detail.

2. Literature review and Hypothesis development

In this section, the theoretical framework is outlined by integrating perspectives on institutional theory and entrepreneurship, social entrepreneurship, healthcare access, education, and gender equality, to argue on the impact they might have on social entrepreneurship initiatives with female leadership**.**

2.1 Institutions, Human Rights and Entrepreneurship

Humans create institutions to establish how things are to be done (North, 1990). Formal institutions consist of organizational structures, explicit incentives, and contractual arrangements and are easy to observe and track over time. While informal institutions affect the behaviour of players in a subtle way, through social constraints, social preferences, customs, traditions, and taboos (Zenger et al. 2002). Less research has been conducted on informal institutions and their impact on projects since their dynamics have not been well documented, treating them as a passive response to formal institutions (Wang et. al, 2018).

Economic activity cannot happen without the presence of institutions, since there is the need for a central actor to establish the legal infrastructure of the system and enforce it, setting the framework that guarantees that competitive market conditions are maintained. Addressing areas of externalities is one of governments' central roles (Santos, 2012). As a part of these roles, governments must stablish property ownership and create the registration and information behind a formal property rights system (Woodruff, 2001) and set policies that promote and sustain economic growth (Galindo-Martín et al., 2019). To facilitate economic growth, institutions must enforce property rights, restrict lobbying, and generate equal opportunities for broad segments of society to give the opportunity for a greater number of people to develop economic activities (Galindo-Martín et al., 2020).

Public institutions all around the globe are influenced by the standards of international institutions like the United Nations (Analoui, 2020). In the Universal Declaration of Human Rights, it is stated that all humans are born under equal conditions in terms of dignity and rights, all humans are entitled to liberty, security, equal protection from the law, education, healthcare, protection of their private property, freedom of movement, consensual marriage, freedom of assembly and expression, take a part of their government, and choice of employment (United Nations. General Assembly, 1949). This publication set the consensus revolving around the importance of governance, the rule of law, education, and health in fostering economic prosperity and emphasizes the role of governments in advancing social inclusion and ensuring economic security domestically (Ruggie, 2003). It has been suggested

that both international institutions and organizations in the public sector, private sector, and NGOs, whether in developed or developing nations, lack enough efficiency and influence (Analoui, 2020). In Latin America, entrepreneurs often perceive institutions as weak, finding little help from regulations and identifying the government structure as unstable (Cordova & Cancino, 2020). In contrast, in European countries organizational frameworks are specially created and dedicated towards social entrepreneurship (Bacq & Janssen, 2011).

The rules of the game related to entrepreneurship play a key role in determining its success or fail (Baumol, 1990). When institutional support is deficient or inexistent, an institutional void is present (Mair et al., 2007). There is a lack of consensus on the relationship between institutions and entrepreneurial activity, since academics are split between institutional quality conditioning entrepreneurship or delimiting it (Diaz Casero et al., 2013).

The impact of institutions on social entrepreneurship is different than the effect on entrepreneurship in general, especially in terms of socioeconomic development (Puumalainen et al., 2015). Some of the most impacting social entrepreneurship innovations have originated from developing countries and focus on new business models that address basic human needs (Seelos and Mair, 2005). However, social entrepreneurship has increased consistently in developed countries as well, creating new industries and present in business model innovations (Santos, 2012), making it hard for academics to define the best institutional conditions for Social Entrepreneurship to flourish.

2.2 Social entrepreneurship motivation

Social Entrepreneurship consists in the pursuit of sustainable solutions to neglected problems that result in positive externalities (Santos, 2012), overtaking entrepreneurial activity with an inherent social mission (Austin et al., 2006) and it builds the bridge between enterprise and benevolence (Roberts and Woods, 2005). Cohen & Winn (2007, p. 7) defined sustainable entrepreneurship as "the examination of how opportunities that bring into existence 'future' goods and services are discovered, created, and exploited, by whom, and with what

economic, psychological, social, and environmental consequences". Similarly, Patzelt and Shepherd (2011, p.2) defined sustainable entrepreneurship as "the discovery, creation, and exploitation of opportunities to create future goods and services that sustain the natural and/or communal environment and provide development gain for others." Zahra et al. (2009, p.4) defined social entrepreneurship as encompassing "the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner."

In contrast to non-profit organizations' goal to address market and government failures, social enterprises' purpose is to address the issues that for-profits, government, and non-profits cannot address (Sud et al. 2008), hence its importance. Social entrepreneurship seems to be better established in developed countries than in less developed ones, while the demand for social entrepreneurship appears to be larger in developing countries (Puumalainen et al., 2015). Evidence has shown that for social entrepreneurship the gender gap is usually smaller than the gender gap present in traditional entrepreneurship, suggesting that the promotion of social entrepreneurship is a powerful tool to increase female participation in the labour market in general (Huysentruyt, 2014), contributing to greater gender equality, empowerment, and socioeconomic development.

Entrepreneurial activity might be unappealing when tax laws and authorities are perceived as unfair and illegitimate (Pittaki, 2020). For example, low quality of financial and nonfinancial support for social entrepreneurs can decrease motivation to engage in solving social problematics (Pacut, 2020). However, it appears that social entrepreneurship motivation increases in environments with scarce resources, where the government is not taking an active role in solving negative externalities, making social problems abundant. On that note, the lack of institutional support appears to foster social entrepreneurship achievement (Stephan et al., 2015), making said institutional void a cause for social entrepreneurship. If there is no incentive for social innovation, stability, and coordination provided by institutions, social entrepreneurship might not arise and societal problems and needs will remain unsolved, making institutions play the role of both motivator and brake (Phillips et al., 2015). Scholars delving into Paradox theory provide a fresh insight into how

institutional complexity can facilitate certain dynamics, directing attention to scenarios where conflicting elements coexist and sheds light on the interconnectedness between these opposing forces (Cherrier et al., 2018). Using as example that success both defines and is defined by failure and that change both defines and is defined by stability, Cherrier et al. (2018) explains how tension, opposition, and contradiction, can positively influence creativity and sustainability. On that note, the reconciliation between the opposing forces of institutional void and institutional support recognizes that institutions can influence individual behaviour (Stephan et al., 2015), both by societal issues being present due to institutional void increasing problems for social entrepreneurs to solve and by institutional presence providing tangible and intangible resources to social entrepreneurs to solve said issues.

It is unclear which is the best institutional setting for Social Entrepreneurship to arise, since both countries with a solid socio-political context or a weak socio-political context can have high rates of self-reported social entrepreneurship (Deng, et al., 2019). Deng et al (2019). share the example of high rates of social entrepreneurship in developed countries with high economic welfare but also high rates of social entrepreneurship for countries with poor institutional and economic development, such as sub-Saharan African countries, as stated in the Global Entrepreneurship Monitor data analysis conducted by Bosma et al (2013).

Human behaviour is shaped jointly by the resources, constraints, and incentives provided by institutions (Stephan et al., 2015). Social entrepreneurship appears to be driven either by altruism or perception of threats. In developed countries motivation usually comes from wanting to develop business models with an ethical behaviour based on personal ideology while in developing countries it has been influenced by personal exposure to violence and poor sanitary conditions (Stirzaker et al., 2021), making social entrepreneurship change across countries. In sustainable entrepreneurship, for example, individuals whose families have made their living from fishing will be more sensitive to changes in marine biodiversity and are more likely to look for ways of eliminating the threat to sustain the livelihood for their offspring; or climate change affecting the variety of food available across regions making individuals that live in more affected areas more perceptive to threats and therefore

more sensitive to opportunities to reduce global warming than individuals living in less affected areas (Patzelt and Shepherd, 2011). For social entrepreneurship, individuals living with disabilities within their family circle that have suffered from the isolation that comes with it have incurred into self-employment that promotes inclusion in the workplace (Kamaludin, 2023).

Institutions are not merely constraints but have causation over social entrepreneurship (Cherrier at al., 2018). Under this reasoning, improving overall institutional quality should be a priority to increase domestic social entrepreneurship (Chambers & Munemo, 2017). The combination of formal and informal institutional factors is important for the involvement of individuals in social enterprises since the institutional conditions affect not only the motivation of individuals to create a social enterprise, but to remain conducting operational activities in the long run (Pacut, 2020).

2.3 Healthcare access as an element of human rights

Following the logic of Maslow's hierarchy of needs, physiological needs of people in the work force significantly shape their work behaviour, the efficacy at which survival and security levels are met will therefore shape the social behaviour in the workspace (Harvard, 2010) since the next level cannot be achieved until the current one is fully met (Gawel, 2019). Individuals are more likely to be attracted to social entrepreneurship when they find themselves at a self-transcendence level (Yahyaoui et al., 2023), only fully reached once health needs are being met. As previously stated, motivators for individuals to solve societal problems often come from benevolence and the desire to help others, not exclusive of the self-transcendence hierarchy, but easily found since it is less difficult to set personal needs aside to serve others (Pangriya, 2019).

Evidence supports that healthy individuals are often better employees, better neighbours, and overall, more capable of participating in community life activities (Dutta, 2019), on that note, individual health impacts school attendance, community health and education at a macro level through community health. An example of this is the recent Coronavirus pandemic, that

forced education institutions of all levels to close if not able to migrate to an online environment (Sahu, 2020), affecting the quality and quantity of education received for countless students. Another example is the high school and work absenteeism caused by asthma exacerbations both for children and caregivers and adults living with severe asthma, a study conducted in California showed that students attending schools with the highest concentrations of low-income students were more likely to miss school because of asthma (Meng et al., 2012).

Based on the past arguments, the first hypothesis is defined as:

Hypothesis 1: Higher access to healthcare positively affects social entrepreneurship.

2.4 Education access as an element of human rights

The recognition of sustainable development opportunities depends not only on individual motivation such as altruism or threat, but also on the knowledge of the communal environment and the interdependency with entrepreneurial knowledge (Patzelt & Shepherd, 2011). If the same holds for social entrepreneurship, entrepreneurial knowledge is key to identify and tackle social entrepreneurship opportunities.

Evidence shows that entrepreneurship skills are teachable and not inherent traits, indicating that general education, quantified by years of schooling, positively influences entrepreneurial performance, and business training enhances the performance of individuals seeking microfinance to initiate their own ventures (Oosterbeek et al., 2010). Said skills, valuable for social entrepreneurship as much as traditional entrepreneurship, can be achieved through education.

The educational system of a country significantly influences individuals' inclinations towards initiating new businesses, since robust educational frameworks typically equip aspiring entrepreneurs with superior training and preparation to overcome the challenges of launching new ventures and consequently altering their environment perception to be better conductive

to entrepreneurship (Sahasranamam & Nandakumar, 2020). On top of knowledge, access to education promotes complex thinking, proven to be a powerful tool for the entrepreneurial journey, from ideation and planning to design and execution and fosters skills that extend beyond the business plan (Vázquez-Parra et al., 2022). Therefore, for this study it is stated that:

Hypothesis 2: Higher access to education positively affects social entrepreneurship.

2.5 Gender Equality as an element of human rights

Individuals who assist the less privileged tend to perceive themselves more positively by believing they are more benevolent and helpful, leading to the conclusion that social experiences positively influence self-referent beliefs such as Social Entrepreneurship self-efficacy and self-esteem; women that develop confidence in their capabilities through social experiences potentially evaluate themselves less against pre-defined gender roles (Ko & Kang, 2022) and therefore are more willing to conduct business activities.

In a study conducted in Morocco by interviewing cooperatives consisting of 60 female social entrepreneurs showed that the highest percentage of women were single, had working experience before incurring into self-employment and had received business training in the past (Berrada & Marghich, 2023). In addition to this, a study conducted on female social entrepreneurs in Spain showed that previous occupational status at managerial level, education and previous work experience had a positive impact on social entrepreneurship (Fernández-Guadaño, & Martín-López, 2023).

A cohort study conducted on 4434 women showed that mortality risk and malnutrition were lower for the children of women who became literate thanks to adult education in comparison to the children of women who remained illiterate, in addition, the survival advantage offered by education was significantly greater for women living in places with poor access to health services (Sandiford et al., 1995). Serving as logic for women with higher access to

opportunities, such as access to education, contribute to individual and community health, impacting positively the circle creating higher self-actualization.

The past arguments on gender equality impacting self-image, perceived skills and contributing to community health allow for the third and fourth hypotheses to be defined as:

Hypothesis 3: Higher gender equality positively affects social entrepreneurship.

Hypothesis 4: Higher gender equality positively affects social entrepreneurship led by women.

3. Methodology

This quantitative model will seek to explain the effect of institutional variables related to human rights, particularly the ones on healthcare access and quality, access to education and gender equality, and on self-reported social entrepreneurial activity led by women from a cross-country perspective. A quantitative approach was chosen to research this relationship because even though some of the variables are not naturally explained in quantitative form, they can be turned into quantitative data and therefore can be analysed empirically (Sukamolson, 2007). A quantitative model is to be defined to stablish causation of institutional variables, focusing on education, healthcare access, and gender equality, on social entrepreneurship with female leaders.

This research will be conducted on the individual level, from a cross-national sample, leading to a multilevel logistic regression model, linking country level indicators on institutional support institutions to individual behaviour. This research method will be conducted using secondary archival data, available to the public after 3 years of data collection, from the Global Entrepreneurship monitor- a project developed in 1999 by a research consortium that provides information on the relationship between social entrepreneurship and national economic development for over 50 countries (Bosma, 2019)- on the impact of human rights institutional variables on Social Entrepreneurship and Social Entrepreneurship led by women. In addition, secondary archival data such as the Global Gender Gap Index published

by OECD, the HAQ index published by Our World in data, and the Fragile States Index comprising of key roles of the state such as health provision, education, and sanitation services on a country level will be used for independent variables. The country control variable Gross Domesic Product (GDP) per capita will be obtained from public archival secondary data from the World Bank Open Data database. All the variables on the country level are studied on the year 2022, except for the Healthcare and Quality Index, whose last update was published in 2015. The Gender Gap Index, Healthcare and Quality Index, and education will be the variables used to explain the impact of institutional presence on social entrepreneurship. At the same time, the Fragile States Index will be the variable used to explain the impact of institutional void on social entrepreneurship.

The dependent variable, dependent variables, and individual and country control variables are explained in detail below, followed by the model specifications. The frequency of the observations captured in all variables can be found in the Appendix.

Dependent Variable:

The dependent variable on Self-Reported Social Entrepreneurial activity, represented by *SOCENTGEM*, consists of the answers of entrepreneurs to the GEM questionnaire in 2021 and 2022 (Global Entrepreneurship Monitor, n.d). Based on their answers, the entrepreneurs were assigned as having strong or moderate indication for social entrepreneurship if the following conditions were fulfilled:

1. *Societal motivation*. The entrepreneur exbibits 'making the world a better place' as one of the motivations to start a business (this does not rule out other motivations, e.g. related to financial income)
2. *Social goals in strategy*. The entrepreneur considers social implications when making decisions about the future of the business
3. *Sustainability as main target*. The entrepreneur prioritizes social and/or environmental impact over profitability or growth.
4. *Social action*. The entrepreneur has taken steps to maximize social impact in the past year.

Items 2. and 4. are captured by putting together the answers to separate questions that corroborate social entrepreneurship goals and actions. This combines elements proposed in the academic literature by Cohen & Winn (2007) and Patzelt & Shepherd (2011) for sustainable entrepreneurship, as well as Zahra et al. (2009) for social entrepreneurship. However, it is important to recognize that social entrepreneurship is contextual, therefore defining and measuring it is a challenging task (Bacq & Janssen 2011).

The total number of observations is 326,165, from which 7,565 respondents filled the conditions stated above and 318,600 did not.

Control variables:

The control variable for age of the individuals, represented as *age9c*, consists of the age range for all 326,165 GEM questionnaire respondents, grouped into 6 categories.

The control variable for the gender of the GEM questionnaire respondents, represented as *gender,* is captured into 3 categories, in which respondents either refused to respond or identified with one of the two gender options given. Using this data, a new dummy variable *female* was created for female respondents, with 161,442 of the entrepreneurs identifying themselves as women (1) and the rest of the respondents categorized as not women (0).

The entrepreneur's self-perceived skill is measured by the variable *suskillL*, based on the GEM questionnaire respondent agreeing or disagreeing on the statement of personally having the knowledge, skills and experience required to start a new business. From all respondents, 162,130 agreed on the statement, the missing values were added to the disagree category, resulting in the variable *skill2*. The creativity of the entrepreneur is measured by the variable *creativ*. In this question, the entrepreneurs were asked if they are perceived by other people as highly innovative. From all GEM questionnaire respondents, 87,565 agreed on the statement, the missing values for this answer were added to the disagree category, resulting in the variable *creativ2*. Both creativity and skills were included as individual control variables to account for the fact that perceived entrepreneurial self-efficacy (whether an individual believes they have the knowledge, skills, and experience necessary to start a new

business) is proven to impact entrepreneurial behaviour and intentions (Pathak & Muralidharan, 2018).

The income of the GEM questionnaire respondents was captured in the variable represented as *GEMHHINC,* with said income recorded into thirds. From all respondents, 63,954 did not report income. Therefore, the missing values were merged with the lowest third, resulting in the variable *GEMHHINC2*.

The control variable for the country level is Gross Domestic Product (GDP) per capita to account for the economic differences across countries, preventing the results of the regression to be spurred by economic development. The logarithm of GDP per capita, represented as the variable LogGDP, was created and chosen over GDP per capita. This being consistent with other quantitative studies on both entrepreneurship and social entrepreneurship (Méndez-Picazo et al., 2021; Arin et al., 2015; Estrin et al., 2016). The data used to create the control variable GDP per capita was retrieved from The World Bank open data.

Independent Variables:

Education on the individual level is measured by the variable represented as *GEMEDUC*. The GEM Harmonized Educational attainment of the entrepreneurs' answers was reported into four ordinal categories, ranging from some secondary education, secondary degree, post-secondary degree and graduate experience. For this study, a new variable *GEMEDUC2* was created, merging the missing values with any education less than post-secondary, post-secondary degree and graduate experience, resulting in three categories.

The state fragility of the country where the entrepreneur resides is measured by the variable *FSI,* based on the data from The Fragile States Index (FSI), produced by The Fund for Peace. The Fragile States Index is an analytical tool designed to assess and monitor the pressures that affect the stability and fragility of 178 countries (Fund for Peace, n.d.). The FSI was developed to explain factors that contribute to internal conflicts that might escalate into mass violence, cause ethnic tensions, civil wars, revolutions, and humanitarian emergencies.

Each year, The Fund for Peace analyses millions of reports and data points, using the Conflict Assessment System Tool (CAST) framework developed in the 1990s. This framework helps policymakers and practitioners understand and measure conflict drivers in complex environments (Fund for Peace, n.d.). In 2004, The CAST framework -initially created to measure vulnerability and evaluate its potential impact on field projects and that remains widely utilized by policymakers, field practitioners, and local community networks- was adapted to create the FSI, enabling the assessment and ranking of state fragility on a national level (Fund for Peace, n.d.). The data collected to develop this comprehensive index is collected through media articles, research reports, and other qualitative data analysed using Boolean search phrases to assess the saliency of issues in each country (Fund for Peace, n.d.). In addition, pre-existing data sets from international agencies, such as the United Nations and the World Bank, are normalized and scaled for comparative analysis.

On top of this, social science researchers review each country's data, focusing on key events and trends to ensure dynamic year-on-year assessments (Fund for Peace, n.d.).

The data from these streams is triangulated to produce final scores, with a review panel ensuring proportionality across countries (Fund for Peace, n.d.).

The overall score of the FSI consists of twelve individual indicators comprised into four categories: Cohesion, Economic, Political, and Social. Among these indicators, we can find Public Services and Human Rights and Rule of Law. The Public Services indicator comprises the provision of essential services by the state, including health, education, water and sanitation, transport infrastructure, electricity and power, and internet and connectivity; whereas the Human Rights and Rule of Law Indicator comprises the relationship between the population and the state on the protection of fundamental human rights and observed and respected freedom of speech, movement, and religion.

The Fragile States Index is measured on a scale of 0 (no state fragility) to 100 (most fragile state). The country data for the overall FSI score is available for 322,038 of the respondents, ranging from 15.1 to 95.4, and a mean of 47.55.

The Healthcare Access and Quality of the country where the respondent resides is measured by the Healthcare Access and Quality (HAQ) Index, represented as the variable *HAQI*. The HAQ Index is processed by Our World in Data, a project created by researchers from

University of Oxford (Roser & Ritchie, n.d.), and was last published in 2015 using the Global Burden of Disease Study from the Institute for Health Metrics (Ritchie, 2018). The Healthcare Access and Quality (HAQ) Index is measured on a scale from 0 (worst) to 100 (best), based on death percentages from 32 causes of death that could have been avoided by effective medical care received on time.

The HAQ index is available for 326,165 respondents, with the lowest value being 40.1, the highest value being 91.8, and a mean of 77.68.

The gender equality of the country where the respondent resides is measured by the variable *GGI*, using the data provided by The Global Gender Gap Index (GGI), published by the World Economic Forum, which annually measures and tracks gender parity across four key dimensions: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment (World Economic Forum, 2023). Since its creation in 2006 and with a constant sample of 145 countries, the Global Gender Gap Index has been the longest-standing index monitoring the progress in closing the gender gap on the country level over time (World Economic Forum, 2023). The GGI is measured on a scale from 0 to 1, where 1 indicates no gap. The data of this variable is available for 303,661 of the respondents, with the lowest value being .713, the highest value being .879, and a mean of .7672. An interaction variable was created between the Gender Gap Index variable and the respondent being female, to measure the effect of living in a country with a closed gender gap on female social entrepreneurship, represented by the variable GGI_fem.

A summary of the dependent variable, independent variables, and relevant control variables is provided in the table below.

Table 1. Variable List

Dependent variable	
SOCENTGEM	Self-Reported Social Entrepreneurial activity
Independent Variables	
GEMEDUC2	Educational Attainment of the entrepreneur
FSI	State Fragility

HAQI	Healthcare Access and Quality
GGI	Gender Equality
GGI_Fem	Interaction term between gender equality and the entrerpreneur being a woman
Control Variables	
age9c	Age of the entrepreneur
gender	Gender of the entrepreneur
female	The entrepreneur is a woman
skill2	The entrepreneur agrees with having the skills necesary for business
creativ2	The entrepreneur agrees with being perceived by other people as creative
GEMHHINC2	Income level of the entrepreneur
LogGDP	Logarithm of GDP per capita

The descriptive statistics of the variable list are provided in the table below.

Table 2. Descriptive Statistics

Variable	**Obs**	**Mean**	**Std. Dev**	**Min**	**Max**
SOCENTGEM	326,165	0.0231938	0.1505188	0	1
GEMEDUC2	326,165	704.0044	713.4533	0	1720
FSI	322,038	47.55179	18.68987	15.1	95.4
HAQI	326,165	77.68968	13.40898	40.4	91.8
GGI	303,661	0.7672605	0.0343449	0.713	0.879
GGI_fem	303,661	0.3818737	0.3847648	0	0.879
Age9c	326,157	4.194928	1.412446	2	7
Gender	326,165	2.494915	0.5000853	1	3
Female	326,165	0.4949703	0.4999755	0	1
Skill2	326,165	0.4979797	0.4999922	0	1
Creativ2	326,285	0.2683697	0.4431117	0	1
GEMHHINC2	326,165	0.8216608	0.8378567	0	2
LogGDP	321,820	8.881027	1.132889	6.848695	11.44315

Model Specifications:

A multilevel logistic regression model is used to explain the factors associated with the likelihood of being a social entrepreneur. This type of regression is suitable when the data to

be explained has a hierarchical structure- in this case, individuals within countries-, when the group and individual variability need to be analysed separately, and when the dependent variable is binary since the outcome is not continuous but categorical (Goldstein, 2011).

4. Findings

In this section, the results obtained from the multilevel logistic regression model are explained, as well as the tests that were conducted to measure that the data allows the model to be accurate and reliable.

4.1 Correlation Matrix

Before running the multilevel logistic regression model, a correlation test was calculated including all variables used for the 2 models. This matrix provides a measure of the linear relationship between all pairs of variables in the dataset. This test helped identify the strength and direction of the relationships between the variables and provided better understanding of the relationships, providing support for the final selection of the relevant variables to consider, since it helped identify which variables may present high multicollinearity, impacting their actual contribution to the robustness of the model if included.

For a correlation matrix, a coefficient of 1 indicates a perfect positive linear relationship, a coefficient of -1 indicates a perfect negative linear relationship, and 0 indicates no linear relationship.

The correlation matrix is provided in the figure below. It shows that the dependent variable SOCENTGEM has a moderate positive relationship with the control variables of creativity and skill, consistent with the argument that perceived self-efficacy positively impacts social entrepreneurship. On the other hand, it presents a negative and weak correlation to HAQI, contrary to the argument expressing that healthcare access and quality positively affect social entrepreneurship.

The variable GGI moderately negatively correlates with FSI, and it is moderately positively correlated with HAQI, consistent with expectations since the variable GGI captures a health

component in one of its subindexes, as well as the fragility of the state index captures discrimination. There is a strong negative correlation with HAQI and FSI, however smaller than .8, given the different arguments on institutional theory that the study seeks to explain, both variables are kept in the model.

The variable GEMEDUC2 presents a slight positive correlation with GEMHHINC, indicating that higher education scores are somewhat associated with higher income. The variable LogGdp shows weak correlations across all variables, with the highest being a slight positive correlation with HAQI.

The variable GGI_fem shows an extremely high positive correlation with gender (0.9970) and female (0.9981), given the nature of the variables this correlation was expected and does not affect the outcome of the model, since the variable female was created from gender and GGI_fem is the interaction between the GGI index and female.

For this set of variables, most pairs exhibit weak to moderate correlations, indicating that while some relationships exist, they are not strongly linear. From this it is possible to conclude that the set of variables is relatively diverse and has limited multicollinearity.

Table 3. Correlation Test.

	SOCENT GEM	GEM EDUC2	FSI	HAQI	GGI	GGI_ fem	Age9c	Gender	Female	Skill2	Creativ2	GEM HHINC2	Log GDP
SOCENTGEM	1												
GEMEDUC2	0.012	1											
FSI	0.0595	-0.1025	1										
HAQI	-0.0804	0.1121	-0.7081	1									
GGI	-0.0386	-0.0228	-0.4312	0.3464	1								
GGI_fem	-0.0181	0.0018	-0.0147	0.0029	0.0661	1							
Age9c	-0.0476	-0.0432	-0.1786	0.1517	0.1271	0.0232	1						
Gender	-0.0169	0.0023	0.0043	-0.0128	0.0229	0.998	0.0181	1					
Female	-0.0169	0.0023	0.0041	-0.0127	0.023	0.9981	0.0181	0.9999	1				
Skill2	0.1201	0.0643	0.1596	-0.1552	-0.0885	-0.1013	-0.0272	-0.0975	-0.0976	1			
Creativ2	0.0916	0.0163	0.2551	-0.3612	-0.1813	-0.0251	-0.0876	-0.0177	-0.0178	0.2259	1		
GEMHHINC2	0.0387	0.2305	-0.0124	-0.0482	0.0025	-0.0986	0.0024	-0.0984	-0.0985	0.0905	0.0605	1	
LogGDP	-0.0184	0.0156	-0.2309	0.184	0.0419	-0.0078	0.0211	-0.0098	-0.0097	-0.0497	-0.0443	-0.0011	1

4.2 VIF Test

The Variance Inflation Factor (VIF) test is used to detect multicollinearity among the independent variables in a regression model. The Variance Inflation Factor and tolerance are based on the proportion of variance the independent variable shares with the rest of the independent variables (O'brien, 2007). A common rule of thumb is that a VIF value above 4 is high, and a value exceeding 10 is a concerning indicator of high multi-collinearity, making it desirable to reduce the collinearity by eliminating one or more variables from the model (O'brien, 2007). A VIF test was conducted for the variables in the model, leaving behind the interaction terms, using a linear regression model as a proxy to measure the multicollinearity before running the multilevel logistic regression model. The variables *female* and *GGI_fem* were excluded from the test, given that the variable female was created from the variable gender, and *GGI_fem* was created from female and *GGI* and would show high multicollinearity because of their nature.

The Variance Inflation Factor (VIF) test for the variables of this model is detailed in the table below, with the second column showing the reciprocal value of tolerance.

The variables FSI and HAQI have VIF values around 2.2, indicating moderate yet acceptable multicollinearity. The mean VIF value is low, suggesting that multicollinearity is not a significant concern, since most of the variables have VIF values close to 1, indicating they are largely independent of each other. These results indicate that it is possible to assess the individual effect of each one of the independent variables on Self-reported Social Entrepreneurship.

Table 4. VIF Test

Variable	VIF	1/VIF
FSI	2.28	0.439516
HAQI	2.2	0.455323
GGI	1.26	0.796133
Creativ2	1.2	0.833148
GEMEDUC2	1.09	0.914833
Skill2	1.09	0.919824
GEMHHINC2	1.08	0.923016
LogGDP	1.06	0.940253
Age9c	1.04	0.958276
Gender	1.02	0.978823
Mean VIF	1.33	

4.3 ICC Test.

In addition, an ICC test was conducted for before running both models. The Intraclass Correlation Coefficient is used to quantify the proportion of variability in the outcome that is attributable to the variability between different groups or clusters (Bartko, 1966). The ICC ranges from 0 to 1, where a higher ICC indicates that a larger proportion of the total variability in the outcome variable is due to variability between clusters. In contrast, a low ICC suggests that most of the variability is within clusters.

The ICC for Model 1 is 0.2708, which indicates that about 27.1% of the variance in self-reported social entrepreneurship can be explained by the differences between countries. The remaining 72.9% of the variance is due to differences within countries. The confidence interval suggests that the true proportion of variance between countries could be as low as 19.5% or as high as 36.3%. The resulting level of clustering suggests that country-level factors play an important role in explaining the variance in social entrepreneurship. The results for Model 1 are consistent with the findings previously mentioned, with an ICC of .27066, indicating that the country-level factors are relevant. The results of both tests, as well as the corresponding standard error and confidence interval, can be found in the Appendix.

4.4 Regression Results.

Model 1 was run using the variable *gender*, which placed female as the reference category, showing the coefficient result for the male category against the reference category female. Model 2 replaces the variable gender for the dummy variable *female*, and includes the interaction term with the Global Gender Gap Index. The results for both models were obtained through a sample of 303,635 individuals, in 50 country groups.

For both models, the probability of social entrepreneurship engagement is positively affected by having graduate education, as well by the individual perceiving themselves as skilled and creative. The effect of income is equally consistent between both models, where belonging to the middle- or upper-income percentile has a positive effect versus the reference category.

Being between the ages of 25 and 34 positively affects the probability of becoming a social entrepreneur. In contrast, this probability decreases for individuals who are 45 years old or older.

For model 1, the probability of social entrepreneurship engagement seems to have a gender bias since male has a positive coefficient against the reference category.

For model 2, being a woman negatively influences the probability of engaging in social entrepreneurship, consistent with the results obtained from Model 1. However, the results show that the interaction term of being a woman and living in a country with favourable gender equality positively affects social entrepreneurship.

For both models, the marginal effects (dy/dx) were calculated to obtain the average change in the predicted probability of the outcome variable for a one-unit change in the predictor variable, holding all other variables constant, the results remained consistent with the outcome of the multilevel logistic regression models. The results of this test can be found in the Appendix.

Finally, both models were regressed using clustered standard errors using the variable *Country* as factor. Clustered standard errors are an alternative approach to test heteroskedasticity-robust standard errors, often applied to geographic units such as states or counties, that can significantly impact the results originally obtained (Abadie et al., 2023). The findings obtained in the original results remained consistent. The coefficients and clustered standard errors for both models can be found in the Appendix.

The table below shows the results obtained through both regression models in detail.

Table 5. Regression Results.

SOCENTGEM	Model 1		Model 2	
Gender Equality	-1.972	(-0.42)	-3.252	(-0.68)
Post Secondary Education	0.0332	(-1.09)	0.0328	(-1.07)
Graduate Education	**0.348*****	(-7.28)	**0.348*****	(-7.27)
State Fragility	-0.00351	(-0.31)	-0.00356	(-0.31)
Healthcare Access and Quality	-0.0146	(-0.90)	-0.0146	(-0.90)
Gender (Ref: Female)				
Male	**0.114*****	(-4.43)		
Skill	**1.661*****	(-40.71)	**1.662*****	(-40.74)
Creativity	**0.681*****	(-20.33)	**0.682*****	(-20.34)
Age (ref: 18-24)				
Age 25-34	**0.141*****	(-3.51)	**0.141*****	(-3.49)
Age 35-44	0.0185	(-0.45)	0.018	(-0.44)
Age 45-54	**-0.280*****	(-6.18)	**-0.280*****	(-6.19)
Age 55-64	**-0.683*****	(-12.53)	**-0.683*****	(-12.53)
Age 65-120	**-1.422*****	(-12.21)	**-1.423*****	(-12.21)
Income (ref: Income Lower 33%tile)				
Income Middle 33%tile	**0.224*****	(-6.96)	**0.224*****	(-6.97)
Income Upper 33%tile	**0.236*****	(-7.3)	**0.236*****	(-7.31)
GDP per capita	0.0502	(-0.38)	0.0501	(-0.37)
Female & Gender equality	-		**2.984*****	(-3.31)
Female	0	(omitted)	**-2.380*****	(-3.48)
_cons	-3.494	(-0.75)	-2.405	(-0.51)
var(_cons[country])	**1.222*****	(-4.6)	**1.221*****	(-4.6)
N	303635		303653	
t statistics in parentheses				
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$				

5. Discussion

Hypothesis 1: Higher access to healthcare positively affects social entrepreneurship.

For both Model 1 and Model 2 explaining the effect of healthcare access and quality on social entrepreneurship, the coefficient for HAQI (Healthcare Access and Quality Index) is not statistically significant at conventional levels. There is no clear evidence to support the hypothesis that better healthcare access positively influences social entrepreneurship, nor specifically social entrepreneurship led by women across countries. While healthcare access and quality are crucial for overall well-being and economic activity, the direct impact caused on social entrepreneurship is not statistically significant to conclude that institutional presence providing healthcare access and quality promotes nor impedes social entrepreneurship.

The Fragile States Index (FSI) does not show a significant relationship with social entrepreneurship on either model. The results provided a consistent outcome that living in a country with higher fragility, as measured by the FSI, does not significantly impact the likelihood of individuals engaging in social entrepreneurship. These results imply that while state fragility is a critical factor in assessing governance and stability, it does not directly influence the propensity of individuals, including women, to engage in social entrepreneurial activities. This finding contrasts with the significant impacts observed for gender parity, since both indexes are built considering some components on health and education. These findings are insufficient to argue that an effective government solving factors that contribute to state fragility is negatively associated with the likelihood of individuals engaging in Social Entrepreneurship, and inclines the balance in favour of institutional support, as proposed by Stephan et al. (2015).

Hypothesis 2: Higher access to education positively affects social entrepreneurship.

Both models show positive and statistically significant coefficients for individuals that have graduate education, stating that not only education in general has a positive impact for social entrepreneurship, but that the likelihood of engaging in social entrepreneurship increases

when higher levels of education are achieved. This aligns with the theoretical argument that education provides individuals with the skills and knowledge necessary to identify and pursue entrepreneurial opportunities, including those focused on creating social impact (Oosterbeek et al., 2010; Patzelt & Shepherd, 2011; Sahasranamam & Nandakumar, 2020; Vázquez-Parra et al., 2022). The findings on skills and creativity, that can be acquired through education, are consistent with the findings by Pathak & Muralidharan (2018).

Hypothesis 3: Higher gender equality positively affects social entrepreneurship.

In Model 1, the coefficient for GGI (Global Gender Gap Index) is not statistically significant, showing no relationship between gender equality and social entrepreneurship. This finding opposes the argument previously stated based on the study by Fernández-Guadaño & Martín-López (2023). One possible factor for this results is that while gender equality might impact Social entrepreneurship through the role it plays in increasing education and community health, the direct effect that it has on Social entrepreneurship might be overshadowed by other individual and country factors.

Hypothesis 4: Higher gender equality positively affects social entrepreneurship led by women.

In Model 2, the results for GGI are consistent with the results obtained through Model 1. However, the interaction term (GGI_fem) explaining the effect of being a woman in a country with favourable gender equality conditions is positive and statistically significant. This indicates that while overall gender equality (GGI) itself does not show a significant effect, the interaction between gender and gender equality positively influences social entrepreneurship. This suggests that in countries where gender equality is higher, we observe relatively higher rates of female social entrepreneurial activity. This supports the hypothesis that higher gender equality contributes to fostering an environment where female-led social entrepreneurship can thrive, potentially due to reduced barriers and greater opportunities for women. This reinforces the statement that reducing gender disparities can empower and motivate women to engage more actively in entrepreneurial activities that address social issues, increasing the representation of women in the labour market (Huysentruyt, 2014).

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6. Limitations

Revisiting the argument stating that social entrepreneurship is contextual, therefore defining and measuring it is a challenging task (Bacq & Janssen 2011), what is social entrepreneurship might vary not only within countries but within regions. Social entrepreneurship is focused on the local needs, which in some countries might be more inclined towards environmental issues and in some others towards social problematics; these differences are not exclusive of countries and might vary within regions.

The same argument on contextual differences is applicable to the institutional effectiveness in regions within countries, with regional or municipal institutions playing an important role that is not captured in this research. One example of this is possible economic disparities between regions of countries, with different characteristics in human capital, agricultural productivity, and degree of industrialization (Arévalo et al., 2011). Another example is the regional disparity in the gender wage gap between regions of a country (Mendoza Cota & García Bermúdez, 2009). However, despite regional variance, all participants in this study share the same country values, no matter the region they reside in and the institutional presence they are under in terms of healthcare access and quality, education, and gender equality might not be properly captured.

7. Future Research

Healthcare quality is a concept that is hard to measure. The data used to explain the relationship between healthcare and social entrepreneurship is based on mortality, which is not necessarily the best indicator of healthcare quality. A better variable that could have been used to explain the relationship that this paper seeks to explore was *absence to work due to illness*, published by OECD (OECD, n.d.). Unfortunately, this variable has a much smaller sample size, with data on twelve countries only. The effect of healthcare quality could be studied again through the impact it has on conducting business activities and not only on mortality causes, if data on a bigger sample of countries was to become available in the future.

For Gender Equality, the effect caused on Social Entrepreneurship might be worth studied not directly, but through the role that gender equality plays on self-perceived skills, creativity, and self-esteem, proven to influence the likelihood to engaging in social entrepreneurial activities.

On the other hand, the effect of State Fragility promoting social entrepreneurship is worth researching in the future if a bigger sample of countries with a more balanced number of observations is provided, since there is a noticeable imbalance in the geographic distribution of the sample as well as the proportion of respondents by country. For instance, European countries are well-represented -with 55% of the sample-, whereas some regions, such as Africa and the Middle East, have fewer countries represented and generally smaller sample sizes.

Lastly, if regional data is available to proper capture the effect of municipal or regional institutions providing education, healthcare access and quality, and gender equality, it would result in a better cluster to capture the effects of institutional presence on Social Entrepreneurship.

8. Conclusion

This study was set to explain the relationship between institutional variables and social entrepreneurship, particularly focusing on healthcare access, education, gender equality, and state fragility across countries. Given the lack of consensus on institutional support or the lack of it motivating social entrepreneurial activity, the motivation of this paper was to explore the relationship between institutional presence- particularly on healthcare, education, and gender equality- on social entrepreneurship, inclining the balance towards institutional support, since the findings on both education and gender equality indicated a positive relationship and no negative relationship on other variables was statistically significant to support institutional void as a driver of social entrepreneurship.

First, the analysis revealed that while healthcare access and quality did not exhibit a statistically significant influence on social entrepreneurship, educational attainment proved to be a significant predictor. Individuals with higher levels of education, especially those with

graduate degrees, demonstrated a greater likelihood to engage in entrepreneurial activities focused on social impact. This highlights the critical role of education in providing individuals with the skills and knowledge necessary for identifying and pursuing entrepreneurial opportunities that address societal challenges and contribute to societal well-being.

Additionally, State Fragility was used as a representation of Institutional void and its influence on social entrepreneurship. State fragility did not demonstrate a statistically significant relationship with the likelihood of engaging in social entrepreneurship activity, making it impossible to infer a positive or negative causation and to link it with either institutional support or institutional void. This implies that despite governance challenges in fragile states, entrepreneurial initiatives aimed at addressing social issues can still thrive due to different factors.

Finally, this research explored the impact of gender equality on social entrepreneurship. While overall gender equality, measured by the Global Gender Gap Index (GGI), did not directly influence social entrepreneurship, there was a significant positive effect observed between gender equality in the context of female-led social entrepreneurship. This suggests that in countries with higher gender equality, there is a conducive environment for women to actively participate in entrepreneurial activities focused on social and environmental impact, potentially due to reduced gender-based barriers and increased educational and financial opportunities, self-perceived skills and higher access to entrepreneurial knowledge.

In conclusion, this research paper contributes to the understanding of how institutional variables can promote social entrepreneurship globally. The findings highlight the important role of education, especially on a graduate level, which partially provides the necessary entrepreneurial skills and knowledge to start a social enterprise; and supports the importance of closing the gender gap to empower women to engaging in social entrepreneurial activities, contributing to better job opportunities for them and increasing the representation of women in the workplace.

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Appendix

Frequency of Observations.

SOCENTGEM	
Involved in early-stage social entrepreneurial activity	
	Freq.
No	318,600
Yes	7,565

GEMEDUC2	
	Freq.
0	162,944
1316	126,531
1720	36,690

Fragile States Index	
	Freq.
15.1	1,983
15.6	4,000
17.5	2,007
18.9	4,026
20	4,082
20.1	4,000
20.9	14,000
22.1	4,517
23.6	11,918
25.4	4,606
27.7	4,000
30.9	7,621
31	4,019
35.2	4,005
37.1	4,013
38.6	2,007
40.6	4,000
41	2,000
42.2	16,000
42.3	6,012

42.6	4,000
42.8	4,000
43.2	22,664
44.4	68,020
46.6	4,000
47.5	4,005
47.9	3,999
49.3	1
50.8	8,127
55.1	2,100
55.8	4,000
56.4	4,139
62.1	2,000
66.6	2,600
66.9	3,764
67.5	8,063
67.8	2,067
68.2	2,110
68.7	2,050
70.1	8,581
70.3	5,793
72	5,869
72.5	2,404
73.9	4,000
75.3	5,862
77.5	6,121
78.4	4,647
83.6	2,023
83.6	8,018
84.1	6,195
95.4	2,000

HAQ Index	
	Freq.
40.4	4,139
41.3	2,010
44.3	2,023
44.8	8,266
44.9	2,000

49.2	2,600
52	5,869
55.7	6,121
61	5,800
61.3	6,571
62.1	3,983
62.6	5,793
64.4	4,005
64.7	2,218
64.9	4,000
67.8	4,647
70.1	2,110
71.1	6,195
71.9	2,000
72	4,005
72.2	4,010
72.7	2,127
73.5	3,999
74.2	3,764
74.4	6,148
75.4	2,067
76	18,664
76.5	2,007
76.6	2,007
77.7	6,100
78.6	4,013
79.4	10,063
79.6	24,029
81.3	4,000
81.6	1
84.6	4,000
85.2	6,012
85.5	4,000
86.4	7,908
87	4,000
87.4	4,000
87.6	4,000
87.9	7,621
88.2	4,606
89	4,019

89.3	4,082
89.5	4,517
89.6	68,020
90.5	18,000
91.8	4,026

Gender Gap Index	
	Freq.
0.713	6,195
0.714	4,005
0.72	10,584
0.721	5,800
0.722	24,112
0.724	12,068
0.726	8,000
0.73	4,515
0.733	5,862
0.736	6,026
0.74	4,606
0.747	10,203
0.748	4,000
0.751	4,647
0.752	2,050
0.756	7,621
0.76	2,067
0.764	3,764
0.765	5,793
0.77	4,000
0.773	4,000
0.777	27,180
0.778	4,029
0.783	4,026
0.787	9,869
0.791	70,043
0.792	8,098
0.793	2,600
0.794	4,000
0.796	4,000
0.8	2,007

0.802	2,000
0.815	19,891
0.856	2,000
0.879	4,000

GGI_fem	
	Freq.
0	152,682
0.713	3,067
0.714	2,075
0.72	5,279
0.721	2,667
0.722	10,479
0.724	5,423
0.726	4,005
0.73	2,208
0.733	2,807
0.736	2,757
0.74	2,270
0.747	5,229
0.748	2,023
0.751	2,479
0.752	1,054
0.756	3,904
0.76	1,064
0.764	1,840
0.765	3,598
0.77	2,046
0.773	1,986
0.777	14,175
0.778	2,022
0.783	2,041
0.787	4,946
0.791	35,054
0.792	4,181
0.793	1,259
0.794	2,097
0.796	2,057
0.8	1,057

0.802	1,009
0.815	9,861
0.856	1,018
0.879	1,942

Age range	
	Freq.
18-24	43,914
25-34	70,899
35-44	73,167
45-54	67,031
55-64	58,165
65-120	12,981

Gender	
	Freq.
Refused	18
Male	164,705
Female	161,442

Female	
	Freq.
0	164,723
1	161,442

Skill2	
	Freq.
0	164,035
1	162,130

Creativ2	
	Freq.
0	238,720
1	87,565

GEMHHINC2	
	Freq.
0	148,755
1	86,823
2	90,587

LogGDP	
	Freq.
6.848695	2,023
6.934968	4,026
7.011227	4,000
7.144126	4,019
7.354675	18,664
7.4116	2,000
7.438444	16,000
7.466375	3,999
7.567116	1
7.64936	5,862
7.679082	5,793
7.698597	4,005
7.882022	3,764
8.219852	1,983
8.228823	4,177
8.293696	2,007
8.319738	2,000
8.334115	10,000
8.365302	5,800
8.448823	10,224
8.526253	4,082
8.700743	68,020
8.79848	4,647
8.819736	5,869
8.840718	8,063
8.946738	6,121
8.973131	2,050
9.118809	4,000
9.219641	4,000
9.275614	2,404
9.349409	4,000

9.392094	6,571
9.467359	7,908
9.491787	6,012
9.594518	2,000
9.633692	2,010
9.666929	2,000
9.835637	4,000
9.915356	4,000
9.94247	4,005
9.964433	4,013
10.12333	4,098
10.35642	4,010
10.38661	4,000
10.43462	2,600
10.45669	2,007
10.61855	7,621
10.62327	2,100
10.7938	4,139
10.82937	4,517
10.86063	4,606
10.91383	4,000
11.24282	4,000
11.38124	4,000
11.44315	4,000

Country	
	Freq.
United States	4,000
Russia	2,010
Egypt	5,800
South Africa	5,869
Greece	4,000
Netherlands	4,517
France	7,621
Spain	68,020
Hungary	4,029
Italy	2,000
Romania	4,098
Switzerland	4,026

Austria	4,606
United Kingdom	4,000
Sweden	10,000
Norway	4,000
Poland	16,000
Germany	7,908
Mexico	5,793
Brazil	4,000
Chile	18,664
Colombia	4,647
Venezuela	2,218
Indonesia	2,600
Japan	4,019
South Korea	4,000
China	3,764
Turkey	2,404
India	5,862
Iran	6,195
Canada	4,000
Morocco	6,571
Tunisia	2,110
Togo	2,023
Sudan	2,000
Luxembourg	4,082
Ireland	2,007
Cyprus	4,139
Finland	1,983
Lithuania	2,007
Latvia	4,000
Belarus	2,050
Serbia	2,067
Croatia	4,000
Slovenia	4,000
Slovakia	4,013
Guatemala	6,121
Panama	4,005
Uruguay	4,005
Kazakhstan	2,100
Puerto Rico	2,000
Dominican Republic	2,000

Taiwan	2,127
Saudi Arabia	8,063
Oman	4,000
United Arab Emirates	4,010
Israel	4,000
Qatar	6,012

ICC Test Model1.

Residual Interclass Correlation				
Level	ICC	Std. Err.	[95% Conf. Interval]	
Country	0.2708515	0.0429287	0.1952352	0.3625604

ICC Test Model2.

Residual Interclass Correlation				
Level	ICC	Std. Err.	[95% Conf. Interval]	
Country	0.2706628	0.0429087	0.195087	0.3623368

Marginal Effect Model1.

Marginal Predicted Mean, Model 1. Delta-method.						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
GGI	-0.0403996	0.097296	-0.42	0.678	0.2310963	0.1502971
FSI	-0.0000718	0.000234	-0.31	0.759	0.0005304	0.0003867
HAQI	-0.0002984	0.0003296	-0.91	0.365	0.0009444	0.0003475
GEMEDUC2						
Post Secondary	0.0006572	0.0006136	1.07	0.284	0.0005454	0.0018598
Graduate	0.0078513	0.0016441	4.78	0	0.0046289	0.0110736
Gender						
1 0 (empty)						
2 . (not estimable)						
3 . (not estimable)						
1.skill2	0.0277882	0.0045823	6.06	0	0.018807	0.0367693

	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
1.creativ2	0.0148634	0.0023968	6.2	0	0.0101657	0.019561
age9c						
25-34	0.0034095	0.0010773	3.16	0.002	0.001298	0.0055211
35-44	0.0004256	0.0009506	0.45	0.654	0.0014376	0.0022888
45-54	-0.005702	0.0012805	-4.45	0	0.0082117	-0.0031922
55-64	-0.0118653	0.0020857	-5.69	0	0.0159532	-0.0077775
65-120	-0.0187677	0.0032367	-5.8	0	0.0251115	-0.0124239
GEMHHINC2						
Income Middle 33%tile	0.0044802	0.000938	4.78	0	0.0026419	0.0063186
Income Upper 33%tile	0.0047514	0.0009703	4.9	0	0.0028496	0.0066532
LogGDP	0.0010282	0.0027241	0.38	0.706	0.0043109	0.0063674
Note: dy/dx for factor levels is the discrete change from the base level.						

Marginal Effect Model 2.

Marginal Predicted Mean, Model 1. Delta-method.						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
GGI	-0.0665701	0.0979241	-0.68	0.497	0.2584979	0.1253577
GGI_fem	0.0610832	0.0205902	2.97	0.003	0.0207272	0.1014392
1.female	-0.0681196	0.0323736	-2.1	0.035	0.1315707	-0.0046685
FSI	-0.0000729	0.0002337	-0.31	0.755	0.0005311	0.0003852
HAQI	-0.0002991	0.0003292	-0.91	0.364	0.0009444	0.0003462
GEMEDUC2						
Post Secondary	0.000648	0.0006133	1.06	0.291	0.0005539	0.00185
Graduate	0.007834	0.0016413	4.77	0	0.004617	0.0110509
1.skill2	0.0278091	0.0045826	6.07	0	0.0188274	0.0367907
1.creativ2	0.0148659	0.0023959	6.2	0	0.01017	0.0195618
age9c						
25-34	0.003395	0.001076	3.16	0.002	0.0012862	0.0055039
35-44	0.0004145	0.0009502	0.44	0.663	0.0014479	0.0022769
45-54	-0.0057058	0.0012803	-4.46	0	-0.008215	-0.0031965
55-64	-0.0118623	0.0020839	-5.69	0	0.0159467	-0.007778
65-120	-0.0187669	0.0032342	-5.8	0	0.0251059	-0.0124279
GEMHHINC2						
Income Middle 33%tile	0.0044874	0.0009382	4.78	0	0.0026485	0.0063262
Income Upper 33%tile	0.0047538	0.00097	4.9	0	0.0028528	0.0066549
LogGDP	0.0010255	0.0027216	0.38	0.706	0.0043088	0.0063597
Note: dy/dx for factor levels is the discrete change from the base level.						

Clustered Standard Errors Regression.

	Model 1	Model 2
GGI	-1.972	-3.252
	(-5.501)	(-5.539)
FSI	-0.004	-0.004
	(-0.01)	(-0.01)
HAQI	-0.015	-0.015
	(-0.013)	(-0.013)
Post Secondary Education	0.033	0.033
	(-0.085)	(-0.085)
Graduate Education	**0.348***	**0.348***
	(-0.139)	(-0.138)
Gender (Male)	**0.114***	
	(-0.049)	
Skill	**1.661****	**1.662****
	(-0.088)	(-0.088)
Creativity	**0.681****	**0.682****
	(-0.124)	(-0.124)
Age 25-34	**0.141****	**0.141****
	(-0.05)	(-0.05)
Age 35-44	0.019	0.018
	(-0.053)	(-0.053)
Age 45-54	**-0.280****	**-0.280****
	(-0.072)	(-0.072)
Age 55-64	**-0.683****	**-0.683****
	(-0.089)	(-0.089)
Age 65-120	**-1.422****	**-1.423****
	(-0.162)	(-0.162)
Income Middle 33%tile	**0.224****	**0.224****
	(-0.064)	(-0.064)
Income Upper 33%tile	**0.236****	**0.236****
	(-0.062)	(-0.061)
LogGDP	0.05	0.05
	(-0.16)	(-0.16)
GGI_fem		**2.984***

		(-1.785)
Female		**-2.380***
		(-1.352)
_cons	-3.494	-2.405
	-5.192	(-5.245)
/var_(cons)	**1.222****	**1.221****
	-0.334	(-0.333)
N	303635	303653
Standard errors in parentheses		
* p<0.10, * p<0.05, ** p<0.01		