

Does Social Progress Impact Entrepreneurial Employee Activity? Evidence from High-Income Countries

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Abstract: *In recent years, the global economy has experienced a significant rise in trade and financial globalisation, driven by deregulation, ICT advancements, increased competition, and various business and financial risks. In parallel, social progress has added complexity to the business environment and highlighted the importance of other types of risks, such as social risk. Aware of this risk-diffusing development, many businesses have devised strategies that consider the entrepreneurial attributes of their employees, commonly referred to as entrepreneurial employee activity (EEA), as a vital factor for creating value. This study examines how social progress and its components facilitate EEA, using a dataset from 26 advanced countries during 2014–2019. Estimation results from a static panel model reveal a significant impact of social progress on EEA. Basic Human Needs and Opportunity play more substantial roles in influencing EEA, whereas the impact of Well-being is more marginal. The research underscores the importance of formulating and implementing social progress-based policies to promote EEA. Policies should prioritise securing basic needs and expanding access to individual opportunities through education, training, and supportive institutional frameworks. Employee profit-sharing schemes, intellectual property protection for intrapreneurs, tax incentives for firms offering upskilling programmes, and protections that reduce job insecurity could foster EEA.*

Keywords: Entrepreneurial employee activity; High-income countries; Intrapreneurship; Panel data; Social progress

JEL Classification: E02, L26, O50

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1. Introduction

The stimulation of entrepreneurship has long been a central focus of business development policies due to its spillover effects across various economic sectors and its significant social value. Entrepreneurship is a process of value creation and idea realisation, encompassing the phases of conception, implementation, and persistence (Bygrave, 2004). Importantly, entrepreneurship is not limited to independent entrepreneurs; it can also occur within organisations. Firm-level entrepreneurship can follow a top-down process—corporate entrepreneurship—or a bottom-up process, referred to as entrepreneurial employee activity (EEA) or intrapreneurship.

Intrapreneurship emerged in the 1980s to describe internal entrepreneurial efforts within organisations. Pinchot (1985) argues that employees are well-positioned to generate novel ideas, pursue new opportunities, and transform them into value-creating activities for their organisation. Unlike traditional employees, intrapreneurs engage in several activities, which include thinking, planning, execution and evaluation. Accordingly, EEA refers to the initiatives undertaken by individual employees to propose and implement innovative business ideas and activities. Antoncic and Hisrich (2003) define employee entrepreneurship as *“emergent behavioural intentions and behaviours related to departures from the customary ways of doing business in existing organisations.”* It is characterised by initiative-taking, opportunity pursuit, and the introduction of novelty within the organisation (Bosma et al., 2012).

The emergence of employee entrepreneurial behaviour as a key component of corporate entrepreneurship has been driven by various factors, particularly the growing challenges and competitive pressures which organisations face. Employee entrepreneurial behaviour is seen as essential for survival, opportunity exploitation, and threat mitigation in today’s unpredictable business landscape (Macedo et al., 2021). As Brigić and Umihanović (2015) note, *“employees are required to do inventive and creative work to maintain the game with time and quality which modern business conditions demand.”* Several works (Augusto et al., 2012; Brigić & Umihanović, 2015) confirm that a developed framework for employee entrepreneurship is a key antecedent for firm growth and, by extension, national competitiveness.

Consequently, identifying the firm-level and country-level determinants that influence EEA is fundamental for both business and public policy.

However, research on EEA remains limited. According to Blanka (2019) and Huang et al. (2021), empirical studies focusing on EEA are rare and often based on case study analyses. Similarly, Elert et al. (2019) and Ljunge and Stenkula (2021) highlight that the enabling mechanisms that foster intrapreneurship at the country level remain underexplored. Ljunge and Stenkula (2021) further suggest that encouraging intrapreneurs may be just as important as supporting independent entrepreneurs, although the latter remains the dominant focus of most national policies.

Existing studies typically investigate the link between EEA and three sets of influences: employee-specific, organisation-specific, and environment-specific factors (Antoncic, 2007). The literature has mainly concentrated on internal factors related to the individual or the organisation, giving relatively little attention to external environmental conditions (Basingab et al., 2024). Nonetheless, certain environmental factors such as economic conditions, industry growth, market dynamism, and demand for innovation, have been shown to support intrapreneurship (Antoncic, 2007; Antoncic & Hisrich, 2001). Dynamism, in particular, reflects unpredictable changes in political, economic, technological, social, and cultural domains.

Building on this foundation, our paper contributes to the intrapreneurship literature by incorporating social aspects into the analysis. Specifically, we examine the role of social progress as a key external environmental condition influencing EEA. Adopting the perspective of Ljunge and Stenkula (2021), we rely on less restrictive ex ante assumptions compared to earlier studies. Social progress is a multifaceted concept that encompasses both economic and non-economic goals such as reducing poverty and inequality, improving education, health, and personal freedoms (United Nations General Assembly, 1969). It represents a country's evolving ability to meet citizens' material and social needs (Estes & Morgan, 1976), shaped by interactions across three levels: individual (capabilities), organisational (productive outcomes), and institutional (governance and policy context) (Stern et al., 2014).

The Social Progress Imperative (2020b) defines social progress as “*the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential.*” Numerous initiatives to measure social progress have emerged in response to the recommendations of Stiglitz et al. (2009).

In our study, we use the Social Progress Index (SPI), developed in 2013 by the Social Progress Imperative, as it provides direct and actionable indicators unlike many other indices that rely on proxies (Almatarneh & Emeagwali, 2019). SPI comprises three main dimensions of non-economic societal performance: Basic Human Needs (BHN), Foundations of Well-being (FW), and Opportunity (OP).

Another distinctive feature of this study is its exclusive focus on advanced economies, which is justified by two main reasons. First, comparing countries within similar income or regional groups ensures analytical consistency. As Sachs et al. (2016) note, substantial variation exists even among countries with comparable characteristics, of which policymakers should understand these divergences and devise tailored long-term strategies. Second, cross-country studies (Bosma et al., 2011, 2012, 2016) show that EEA is more prevalent in high-income countries than in low-income ones, suggesting that the influence of intrapreneurship drivers varies by region (Ljunge & Stenkula, 2021). Factors such as the number of innovative firms and the ease of doing business are crucial in such comparisons. Bosma et al. (2016) find that structural, regulatory, and cultural conditions make employment-based entrepreneurship more attractive than self-employment in these contexts. Although low-income countries tend to score lower on social progress indicators, the relationship between income level and social progress is neither simple nor linear (Social Progress Imperative, 2020b).

The remainder of this paper is structured as follows: Section 2 provides a short literature review of the relationship between social progress and EEA and outlines the research hypothesis. Section 3 reports the methodology. Section 4 presents and discusses the results. Section 5 recommends and concludes.

2. Theoretical Background

2.1 Impact of social progress on EEA

To the best of our knowledge, few empirical studies have examined the link between social progress and EEA. Most research has focused on entrepreneurship more broadly rather than specifically on EEA. For instance, Waseem (2018) finds that social progress is positively associated

with opportunity-driven entrepreneurship and negatively with necessity-based entrepreneurship among women. Urbano et al. (2016) investigate the relationship between social progress orientation and innovative entrepreneurship across the 56 countries included in the 2012 GEM report. They show that social progress orientation can be a useful factor in examining entrepreneurial activity driven by different motivations (e.g., opportunity, necessity, innovation). Specifically, societies with a strong voluntary spirit, high self-expression values, and lower power distance tend to exhibit higher levels of innovative entrepreneurship. Using a panel dataset of 63 countries from 2012 to 2014, Urbano et al. (2019) reveal a positive relationship between entrepreneurial activity and social progress. They show that institutions, reflecting the regulatory regime and political stability, influence entrepreneurial activity and foster social progress. Aparicio et al. (2019, 2020) further find that societies oriented towards social progress provide a favourable environment for innovative entrepreneurs to generate social benefits.

This section briefly presents studies that explore the relationship between various dimensions of social progress and EEA, which may provide relevant insights for the present study.

2.1.1 Human needs dimension and EEA

Higher social progress is associated with better access to basic human needs such as goods and services, clean water and sanitation, nutrition, safety, healthcare, and shelter. Fulfilling basic needs can improve the physical strength, agility, and stamina of individuals thereby stimulating worker productivity (Leibenstein, 1957; Grossman, 1972; Perlo-Freeman & Webber, 2009). Bloom and Canning (2000) suggest that healthier societies tend to be more productive. This can be attributed to their enhanced physical and mental readiness, enabling a greater capacity for sustained work.

2.1.2 Foundation of well-being dimension and EEA

Higher social progress also correlates with stronger foundations of well-being, notably through improved access to education. Human capital theory helps explain the connection between social progress and entrepreneurship. Human capital encompasses skills, education, training, migration,

knowledge, information, ideas, and health (Schultz, 1961; Becker, 2002). Numerous studies (Bates, 1990; Blanchflower & Meyer, 1994; Kostova, 1997; Armington & Acs, 2002; Acs & Armington, 2003; Kirchoff et al., 2002; Acs et al., 2007) support the idea that education influences entrepreneurial choice. Education which is tailored to entrepreneurship may encourage employees to act intrapreneurially within the organisation, fostering greater prosperity. Stam (2013) highlights the importance of human capital investments for intrapreneurship at the national level. Moriano et al. (2014) suggest that higher levels of employee education lead to more intrapreneurial behaviour. Well-educated employees are more likely to initiate intrapreneurial projects based on their competencies and innovative attributes. Huang et al. (2021) acknowledge the benefits of further exploring the education-intrapreneurship link, while Basingab et al. (2024) find that education and social status have significant direct effects on EEA in Saudi Arabia.

Shepherd and Patzelt (2015) also explore the potential link between entrepreneurship and health. However, Ute (2018) notes that most studies do not distinguish between different types of entrepreneurs.

Greater access to and use of technology and information also accompany higher levels of social progress. Information and communications technology (ICT) plays a key role in facilitating social relationships that enable entrepreneurs to share information, identify opportunities, mobilise resources, and gain support from colleagues (Gerards et al., 2021). ICT reduces information asymmetries and allows economic agents to make decisions with fewer uncertainties. According to de Leede (2016) and Gerards et al. (2021), ICT enables novel working methods and supports the development, monitoring, and implementation of new business ideas, thereby leading to intrapreneurial outcomes (Huang et al., 2021).

The relationship between EEA and social progress can also be interpreted through the lens of Amartya Sen's Capability Approach (1999). This framework emphasises the expansion of individual freedoms and capabilities to pursue meaningful activities and goals. In this context, social progress serves as an enabling environment for EEA by enhancing individual capabilities and reducing structural constraints.

2.1.3 Opportunity dimension and EEA

Opportunity, the third dimension of social progress, reflects the degree to which societies empower or restrict individual autonomy, freedom, and the ability to progress. It includes personal rights, personal freedom and choice, inclusiveness, and access to advanced education. The institutional approach offers a useful framework for analysing the socio-cultural factors influencing intrapreneurship. According to North (1990, 1994), institutions can be formal (e.g., political, legal, and economic systems) or informal (e.g., social norms, values, and beliefs). North (1994) states that “*institutional determinants—including the social, political, and cultural context—shape the ‘rules of the game’ within which entrepreneurs operate*”. Although entrepreneurship is a universal aspect of human action, its expression depends on the institutional environment (Bosma et al., 2012). “*Variables such as property rights, competition law, political freedom, labour laws, social security, corruption, and demographic composition are related to social progress*” (Bjørnskov & Foss, 2008). Lee et al. (2004) emphasise the importance of social and contextual factors in entrepreneurial activity while Aparicio et al. (2021) suggest that future studies examine how formal and informal institutions influence EEA.

Consistent with the institutional approach (e.g., Bjørnskov & Foss, 2008; Urbano et al., 2016; Avnimelech & Zelekha, 2015; Aparicio et al., 2019, 2020), opportunity, as measured by the Social Progress Imperative (2020a), can promote intrapreneurship by fostering social cohesion, trust, and personal freedoms. Effective public institutions, characterised by political stability, low corruption, and strong regulatory standards, are essential for productive entrepreneurial activity (Ljunge & Stenkula, 2021). Elert et al. (2019) find that general trust positively affects intrapreneurship by increasing job autonomy and enhancing welfare systems.

Access to advanced education also equips individuals with skills required in dynamic environments (Jiménez et al., 2015; Méndez-Picazo et al., 2021). Jiménez et al. (2015) show that such access increases formal entrepreneurship by boosting self-confidence and lowering perceived risk. Méndez-Picazo et al. (2021) argue that higher education fosters a desire for innovation, enabling entrepreneurs to identify market opportunities and use appropriate tools efficiently.

Social values—integral to a society’s culture—are important informal institutions influencing behaviour (Dyczewski & Sławik, 2016; Ljunge &

Stenkula, 2021). They help shape organisational practices and employee behaviour, enhancing engagement and aligning individual decisions with broader company goals. Intrapreneurship thrives in societies that value individual freedom and self-direction.

Corruption is prevalent in both developed and developing countries (Rose-Ackerman, 2002). It can impose long-term societal costs (Ades & Di Tella, 1999; Zelekha, 2013; Avnimelech & Zelekha, 2015). Countries with high corruption levels typically exhibit lower levels of productive entrepreneurship, with the negative impact being more pronounced in developed economies (Avnimelech et al., 2014). According to Avnimelech & Zelekha (2015), corruption diminishes entrepreneurial activity by reducing trust and incentives. Bjørnskov and Foss (2008) also find that legal quality does not significantly impact entrepreneurship in the 29 countries in the 2001 GEM report.

A society marked by generosity, openness, and self-expression creates a fertile environment for innovation. Florida et al. (2008) argue that tolerance fosters economic opportunity and creativity by enhancing various forms of capital. Florida (2014) further highlights the role of tolerance in entrepreneurial behaviour. Berggren and Nilsson (2016) show that tolerance towards minorities correlates positively with economic freedom, encouraging entrepreneurship. Giannetti and Simonov (2009), using Swedish data, find that democracy facilitates the exchange of dispersed knowledge, a key factor in entrepreneurial innovation. Urbano et al. (2019) also argue that stable democracies support entrepreneurship.

Finally, Audretsch et al. (2007) and Henley (2016) examine how religion affects entrepreneurial decisions, finding that certain religious beliefs are more conducive to entrepreneurship. Parker (2004) notes that such decisions are also influenced by income tax rates, labour market experience, income differentials, urban residence, and health status.

2.2 *Hypothesis*

Based on the results from the empirical literature, the following hypothesis is formulated:

H₁ Social Progress and its three dimensions impact EEA positively.

3. Methodology

This section details the sample data, variables, and methodology of the research.

3.1 Sample

We consider 26 high-income countries in Europe and Central Asia, selected based on data availability for 2014–2019 (Table 1).

Table 1: The selected countries

Austria	Latvia	France	Slovak Republic
Belgium	Lithuania	Germany	Slovenia
Croatia	Luxembourg	Greece	Spain
Cyprus	Netherlands	Hungary	Sweden
Denmark	Norway	Ireland	Switzerland
Estonia	Poland	Italy	United Kingdom
Finland	Portugal		

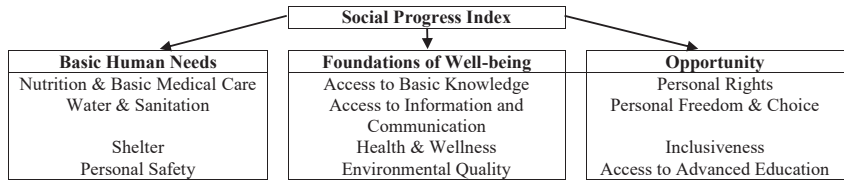
3.2 Data collection and variables' measurement

Table 2 presents the variables used in the model.

The dependent variable, EEA, captures the extent of employee engagement in entrepreneurial activities across the countries studied. Data are drawn from the National Expert Survey of the Global Entrepreneurship Monitor (2020).

The primary explanatory variable, social progress, is derived from country-level time series data available through the Social Progress Imperative database (2020a). Social progress is assessed using 52 indicators related to social and environmental performance, which, while not direct economic indicators, are strongly associated with economic outcomes. Countries are scored on a scale from 0 (worst) to 100 (best). The dimensions of social progress are illustrated in Figure 1.

Figure 1: Social Progress Index indicator-level framework



Source: Stern et al. (2014).

The control variables are unemployment, inflation, and GDP per capita growth. All data are obtained from the International Monetary Fund’s World Economic Outlook (WEO) database (2020) and the World Bank’s World Development Indicators (2020).

The literature examining the influence of unemployment on entrepreneurship (Thurik et al., 2008; Remeikienė & Startienė, 2009) identifies two opposing effects. First, the “*Refugee effect*” suggests that high unemployment, accompanied by a loss of social status, may increase entrepreneurial activity, as self-employment becomes the only viable income-generating option for the unemployed and those excluded from the labour market (Thurik et al., 2008). Second, the “*Prosperity Pull effect*” reflects a negative impact of unemployment on entrepreneurship, as the unemployed may lack the necessary skills, experience, or personal traits typically associated with successful entrepreneurship (Remeikienė & Startienė, 2009). In this regard, unemployment may have several adverse consequences, including financial insecurity, reduced self-esteem, disrupted career paths, and limited skill development. Prolonged unemployment is particularly harmful and can threaten social stability when rates reach very high levels. A sharp rise in unemployment rates can reduce consumer demand for goods and services, limiting business opportunities (Rusu & Roman, 2017).

Regarding the inflation–entrepreneurship relationship, previous studies (e.g., Salman, 2014; Arin et al., 2015; Rusu & Roman, 2017) argue that inflation raises business start-up costs, inhibits the implementation of new ideas, and restricts firms’ access to capital. Furthermore, high inflation can affect income distribution, increasing social tensions.

Table 2: Variables description

Variable	Description
Dependent variable	
Entrepreneurial Employee Activity	The rate at which employees participate in entrepreneurial endeavours. This includes the establishment of new business units, new establishments or subsidiaries, or the development and launch of new products or services.
Independent variables	
Social Progress Index	The extent to which countries provide for their citizens' social and environmental needs.
Basic Human Needs	Assess how well a country provides for its people's essential needs by measuring access to nutrition and basic medical care, if they have access to safe drinking water, adequate housing with basic utilities, and if society is safe and secure.
Foundations of Well-being	<i>"Assesses whether citizens have access to basic education, can access information and knowledge from both inside and outside their country, and if there are conditions for living healthy lives. It also considers a country's protection of its natural environment which are critical for current and future well-being, including air, water, and land"</i> (Social Progress Imperative, 2018).
Opportunity	<i>"It measures the degree to which repressive practices and policies on personal rights and freedoms restrict the realisation of potential through showing the ability to make own decisions away from repression, prejudices or hostilities. It also considers the degree to which citizens are able to access to different forms of advanced education, with implications on knowledge and skills, creating the potential for a wide-ranging personal opportunity"</i> (Social Progress Imperative, 2018).
Control variables	
Inflation rate	Annual percentages of average consumer prices are year-on-year changes.
Unemployment rate	Percentage of the unemployed population who are out of work but seeking and readily available for employment.
GDP per capita	Gross domestic product per capita expressed as annual percentage growth rate.

As for the impact of GDP per capita on entrepreneurial activity, studies such as Ghoshal et al. (1999) suggest that in countries with higher economic development, the dominance of large firms can discourage independent entrepreneurship. However, Bosma et al. (2011, 2012, 2016) and Rusu and Roman (2016) find a direct and positive association between GDP per capita and EEA, with the strength of this relationship influenced by the level of economic development. In advanced economies, higher GDP per capita is typically associated with greater entrepreneurial activity. Rising income

stimulates demand for a broad range of goods and services, prompting firms to encourage EEA to meet this demand. Rusu and Roman (2016) argue that high levels of EEA indicate a more innovative and proactive entrepreneurial culture within the business sector. Based on this rationale, one may expect a positive relationship between GDP per capita growth and EEA.

3.3 *Econometric model and estimation approach*

The panel data model is:

$$EEA_{it} = \alpha_0 + \beta_1 SI_{it} + \beta_2 INF_{it} + \beta_3 UN_{it} + \beta_4 GDPC_{it} + \varepsilon_{it} \quad (1)$$

where EEA refers to entrepreneurial employee activity over time in each country; the subscript $i = 1, \dots, N$ denotes the country ($N = 26$ in our study), $t = 1, \dots, T$ denotes year ($T = 6$ in our study); α_0 is the intercept; SI is the social progress indicator; β_2 , β_3 and β_4 are control variables coefficients; INF is inflation rate; UN is unemployment rate; $GDPC$ is GDP per capita growth, and ε is the error term with $E(\varepsilon_{it}) = 0$ and $\text{var}(\varepsilon_{it}) = \sigma_\varepsilon^2$.

Three approaches can be used to estimate the specification in Equation (1): Pooled Ordinary Least Squares (OLS), Fixed Effects (FE), and Random Effects (RE). Pooled OLS treats the data as simple cross-sections, ignoring both country-specific and time-specific effects, which overlooks heterogeneity and the panel structure (Baltagi, 2005). The FE model accounts for unobserved country-specific heterogeneity via individual intercepts, estimated using dummy variables (LSDV) or the within transformation. The RE model assumes unobserved effects are uncorrelated with explanatory variables, capturing time-invariant country characteristics and common trends, typically estimated using Generalised Least Squares (GLS) (Wooldridge, 2002).

To select the appropriate method, three tests are used:

- F-test: compares FE with pooled OLS to assess the joint significance of fixed effects.
- Hausman test: examines whether RE estimates are consistent; if rejected, FE is preferred (Hausman, 1978).
- Lagrange Multiplier (LM) test: compares RE with pooled OLS to determine the need for random effects (Breusch & Pagan, 1980).

Additional diagnostics include the Breusch-Pagan (1979) test for heteroscedasticity and the Wooldridge (2002) test for serial correlation.

4. Results and Discussions

4.1 Descriptive statistics

Table 3 presents descriptive statistics. The EEA's values range from 0.72% (Italy in 2019) to 11.43% (Denmark in 2014), with higher rates reflecting greater employee intrapreneurship. The mean is 4.87%.

Table 3: Descriptive statistics

	N	Minimum	Maximum	Mean	Standard Deviation
EEA	120	0.72	11.43	4.8700	2.17937
SPI	156	77.91	90.95	84.9794	3.64513
BHN	156	88.94	97.03	94.2007	2.12179
FW	156	76.15	92.32	85.1965	3.90155
OP	156	64.04	84.03	75.5406	5.76923
INF	156	-1.54	3.72	0.9458	1.10115
UN	156	3.04	26.49	8.3048	4.63031
GDPC	156	-0.92	23.99	2.3632	2.40045

Source: Authors' calculations.

The SPI's values range from 77.91 points (Croatia in 2014) to 90.95 points (Norway in 2019), with an average of about 85 points. Between 2014 and 2019, the selected countries made notable improvements in Access to Information and Communications and Environmental Quality. However, there was a decline in Personal Rights, Personal Freedom and Choice, and Inclusiveness. Progress was also observed in Access to Advanced Education. Basic Human Needs showed modest improvements, particularly in Nutrition and Basic Medical Care, Water and Sanitation, and Shelter, although Personal Safety experienced a decline.

In terms of economic conditions, the countries under study faced high unemployment rates, ranging from 3.04% to 26.49%. "The unemployment rate is most relevant as an indicator of the labour market's health in high-income countries, where unemployment greatly increases the risk of

poverty.” (ILO, 2019). Although unemployment rates have declined in recent years, many high-income countries are still dealing with long-term unemployment resulting from the 2008 financial crisis. Unemployment is mainly driven by (i) cyclical factors related to the business cycle and (ii) structural characteristics of labour markets, such as minimum wage laws, unemployment benefits, and other government regulations that may discourage firms from hiring and unemployed individuals from accepting jobs or starting private enterprises.

Inflation rates range from -1.54% to 3.72%. GDP per capita growth varies widely, ranging from -0.92% to 23.99% with a standard deviation of 2.4%, reflecting substantial heterogeneity across countries.

According to the correlation matrix (Table 4), EEA is positively associated with the explanatory variables, except for unemployment. To detect multicollinearity, the Variance Inflation Factor (VIF) was computed. Results indicate moderate correlation among variables, suggesting regression analysis can be reliably performed.

Table 4: Correlation matrix

	EEA	SPI	BHN	FW	OP	INF	UN	GDPC
EEA	1							
SPI	0.437**	1						
BHN	0.413**	0.820**	1					
FW	0.338**	0.927**	0.671**	1				
OP	0.445**	0.967**	0.733**	0.834**	1			
INF	0.245**	0.132	0.006	0.183*	0.124	1		
UN	-0.621**	-0.345**	-0.320**	-0.239**	-0.374**	-0.486**	1	
GDPC	0.163	-0.173*	-0.171*	-0.177*	-0.146	-0.013	0.021	1

***significant at 1%; **significant at 5%; *significant at 10%.

Source: Authors' calculations.

4.2 Regression results

Table 5 presents the RE model estimation results, which are retained based on panel diagnostic tests supporting its superiority over the FE model.

The findings highlight the significant role of social progress in shaping EEA, thus supporting our hypothesis. Enhancing social progress generates multiple economic benefits through increased EEA. Advancing social

progress can be achieved by expanding good governance practices across both the public and private sectors (Almatarneh & Emeagwali, 2019; Ghazaoui & Emeagwali, 2021).

The findings suggest that the three dimensions of social progress significantly influence EEA. These results align with Amartya Sen's Capability Approach (1999) as well as institutional and human capital theories. However, the magnitude and significance of the relevant coefficient indicate differing levels of influence.

First, the BHN dimension has the strongest impact on EEA, with a coefficient of 0.327 (significant at the 5% level). Although the countries in the sample generally score high on basic human needs, the strong coefficient indicates that even incremental improvements can generate substantial gains in EEA. In line with Amartya Sen's Capability Approach (1999), it suggests that when physiological, healthcare, housing and other needs are satisfied, individuals feel that their survival concerns no longer constrain their capabilities and resources. The individual, economic and social resources available may incentivise them to pursue other goals, transform these resources into output, and develop self-actualisation, including intrapreneurship.

Second, the OP dimension of the social progress index has a significantly positive effect on EEA. This finding is consistent with the institutional theory (Bjørnskov & Foss, 2008; Avnimelech & Zelekha, 2015; Urbano et al., 2016; Aparicio et al., 2019; Aparicio et al., 2020; Ljunge & Stenkula, 2021). Accordingly, our result implies that the institutional promotion of sound governance, tolerance, inclusion, equality, and other freedoms which favour women and minorities can unleash individual and business initiatives and positively affect EEA. Similarly, access to social resources embedded in networks, trust, and education can accelerate entrepreneurship mobilisation.

National policies should consider psychological and social safety in the workplace by addressing harassment, discrimination, and burnout. In addition, higher access to advanced education stimulates innovation and entrepreneurial motivation (Jiménez et al., 2015; Méndez-Picazo et al., 2021). Eliminating barriers to advanced education may enable employees to upskill their entrepreneurial competencies, improve the quality of their human capital and the firm's productivity and efficiency through EEA-based initiatives. Therefore, investing in the lifelong education of employees

could generate numerous benefits. Firms should be incentivised to co-invest in continuous learning programs—covering digital skills, leadership, and sustainability—and to facilitate access to executive education and university-industry collaborations.

Third, the FW dimension has a much smaller effect (0.049, significant only at the 10% level). Challenges related to economic growth, such as lifestyle changes and disparities in education, may limit the influence of this dimension (Jiménez et al., 2015; Méndez-Picazo et al., 2021). Governments can implement measures to advance digital literacy among employees and promote transparent access to corporate and market information within organisations. Public-private partnerships can deliver targeted improvements in digital inclusion and workplace safety. It is also crucial to ensure equitable access to preventive healthcare services while promoting employer-sponsored wellness programs and health insurance schemes. Benchmarking and sharing best practices across countries will encourage policy convergence and mutual learning in employee intrapreneurship.

With the global population ageing rapidly, healthcare systems are expected to face increasing demand and mounting pressure. There is an urgent need for governments to reform both the funding mechanisms and the delivery structures of healthcare services. Equally important is the advancement of preventative medicine to support healthier, longer lives, along with the development of innovative, cost-efficient healthcare delivery models and technologies. The healthcare sector stands out as one where emerging artificial intelligence (AI) technologies could have a transformative impact (AlTi Tiedemann Global & Social Progress Imperative, 2025).

Table 5: Regression models (Random effects); 26 high-income economies

	(1)	(2)	(3)	(4)
SPI	0.194** (2.08)			
BHN		0.327** (2.51)		
FW			0.049* (1.80)	
OP				0.142** (2.31)
INF	-0.072 (-0.36)	-0.039 (-0.20)	-0.065 (-0.32)	-0.046 (-0.25)

	(1)	(2)	(3)	(4)
UN	-0.137*** (-3.37)	-0.145*** (-3.99)	-0.161*** (-4.13)	-0.133*** (-3.22)
GDPG	0.078* (1.72)	0.072 (1.65)	0.067* (1.75)	0.075 (1.61)
α_0	-10.440 (-1.30)	-24.714** (-2.00)	2.159 (0.91)	-4.728 (-0.99)
F test	5.83	6.22	6.50	6.00
Hausman Test: p-value	0.2060	0.4363	0.1186	0.2560
Breusch-Pagan Lagrange multiplier test: p-value	0.0000	0.0000	0.000	0.000
Wooldridge test: p-value	0.2306	0.1581	0.0985	0.1241
Breusch-Pagan test: p-value	0.0000	0.0000	0.0000	0.0000

***significant at 1%; **significant at 5%; *significant at 10%.

Robust standard errors in parentheses.

Source: Authors' calculations.

Concerning the effects of control variables, lower unemployment is associated with higher EEA, consistent with the *Prosperity Pull Effect* hypothesis (Remeikienė & Startienė, 2009). This hypothesis posits that individuals who are employed with stable incomes are more likely to engage in intrapreneurial activities. However, it is worth noting that job security may also lead to a “quiet life” trap, where the lack of employment risk reduces motivation for entrepreneurial initiatives. Therefore, well-designed macroeconomic policies aimed at reducing unemployment may help foster intrapreneurship. The government could also implement lifelong learning programs to ensure employees remain adaptable and proactive in evolving industries. The experience of Singapore in lifelong Learning, known as SkillsFuture, can serve as an example to follow. SkillsFuture focused on promoting a skilling environment for employees to not only empower employees with self-actualisation opportunities but also transform the organisation and enhance its competitiveness in the market (Tan, 2017).

The inflation variable shows a negative but statistically insignificant effect on EEA, diverging from the results of previous empirical studies (Salman, 2014; Arin et al., 2015; Rusu & Roman, 2017). In this context, price fluctuations may have a limited impact on employees' purchasing power or their willingness to innovate within firms.

Finally, the coefficient of GDP per capita is positive but statistically insignificant (Columns (2) and (4), Table 5), which contradicts earlier

findings (Bosma et al., 2012, 2016; Rusu & Roman, 2016). A possible explanation is that the selected countries have experienced episodes of economic stagnation or decline during the study period, thereby weakening the expected positive association between economic development and EEA.

5. Conclusion

Using a panel data model, this study advances the entrepreneurship literature by empirically examining the mechanisms underlying the nexus between EEA and social progress in high-income countries. The analysis employs data from the Social Progress Imperative, a relatively new and underutilised source in entrepreneurial research. The empirical findings of this study are relevant for policymaking, businesses, individuals, and future research.

The primary finding suggests that enhancing the dimensions of social progress can stimulate EEA, but with varying degrees. First, improving the well-being of individuals can stimulate intrapreneurship, which may have a positive impact on firm performance. Policymakers and employers should promote well-being measures that allow entrepreneurial engagement of the workforce. For instance, supported by regulations, employers may allow workers to organise goals, professional development, learning, and social interactions at work. The government should focus on improving the quality of life and well-being of its citizens by investing in social infrastructure associated with better health and fulfilment. Laws and regulations may impose measures that could lead to job lock or job security, or limit managers' opportunities to employ and lay off workers or exploit them. They should also incentivise employers to invest in the professional development and well-being of the workforce, through tax breaks, subsidies, health insurance and other social programmes.

Second, allowing individuals to consider opportunities has a positive impact on EEA, aligning with the institutional theory (North, 1990). This dimension captures the opportunities available to individuals promoted by formal institutions, which allow them to improve their well-being and achieve their full potential and innovation capacity. Formal institutions can design appropriate legal frameworks and incentive structures that reduce uncertainty and encourage entrepreneurial behaviour within firms. Policymakers can design a legal framework that protects the intellectual property and innovations of employees by facilitating profit-sharing schemes

from employee-led risk-taking. This is similar to Google's "20% Time" approach, which encourages employees to dedicate 20% of their time to working on side projects or learning new skills while still performing their main jobs (Schrage, 2013). This policy enhanced empowerment and self-actualisation in the workplace, manifested by the innovation of Gmail, Google News and AdSense (Mims, 2013).

From a different perspective, the positive OP-EEA nexus can be enhanced by ensuring that individuals can exercise their rights, freedom and choice, inclusiveness, and access to advanced education, which aligns with the human capital theory (Becker, 1964). This does not necessarily require large-scale investments but depends largely on supportive norms and inclusive policies. For instance, policy can promote lifelong learning programmes by incentivising firms to offer training to their employees, aiming at knowledge accumulation and skills development, such as creativity, entrepreneurial innovation, and digital literacy. For instance, Singapore initiated the 'SkillsFuture' programme to continually upgrade employees' capabilities and support EEA in the technology and services sectors (Tan, 2017). Fiscal support can emerge as the appropriate tool to motivate firms to upskill their employees, targeting their entrepreneurial competencies.

Finally, the government should prioritise basic human needs, as investments in these areas are directly productive. Promoting coherent education and training systems, aligned with required skills, can enhance EEA. Policies should also improve employee welfare—healthcare, job security, fair wages—and strengthen employment protection to encourage risk-taking. Furthermore, governments should adopt effective policy responses to mitigate the socioeconomic impacts of the COVID-19 pandemic and accelerate recovery. As noted by the Social Progress Imperative (2020b), *"unless urgent actions are taken, the Covid-19 pandemic and accompanying economic crisis risk setting social progress in the world back by another decade, pushing out achieving the SDGs until 2092."*

This research contributes to the literature by shedding light on macro-level determinants of intrapreneurship. It offers a broader perspective by focusing on how different facets of social progress affect EEA. The findings may help inform the development of a comprehensive policy framework to promote intrapreneurship. Moreover, this study provides employees with insights into the broader societal factors influencing their intrapreneurial behaviour.

Nonetheless, this study has several limitations that highlight avenues for future work. First, the Global Entrepreneurship Monitor database does not offer a long enough time series for robust and stronger causal analysis. The relatively small number of observations may reduce the statistical power needed to detect potential violations of regression assumptions.

Second, the assumption of a unidirectional relationship may overlook the possibility that entrepreneurial engagement itself enhances social progress. Benz and Frey (2008) hold that engaged and productive workers actively engaging in entrepreneurial work report higher job and life satisfaction because they experience the greater autonomy that self-employed persons enjoy. Similarly, Shir et al. (2019) find that active engagement in entrepreneurial work tasks in Sweden is strongly associated with well-being relative to non-entrepreneurial work.

Third, the focus on high-income countries limits generalisability, and comparative research across income groups could offer more comprehensive insights.

Finally, future work could examine additional transmission channels—fiscal, banking, IT, institutional, human capital, and even AI—through which social progress may affect EEA.

CRedit author statement

Teheni El Ghak & Abderazak Bakhouché: Conceptualisation. **Teheni El Ghak:** Design of methodology. **Teheni El Ghak:** Data collection/curation. **Teheni El Ghak & Abderazak Bakhouché:** Formal analysis. **Teheni El Ghak & Abderazak Bakhouché:** Writing - Original draft preparation and editing.

References

- Acs, Z. J., Armington, C., & Zhang, T. (2007). The determinants of new-firm survival across regional economies: The role of human capital stock and knowledge spillover. *Papers in Regional Science*, 86(3), 367-392.
- Acs, Z., & Armington, C. (2003). The impact of geographic differences in human capital on service firm formation rates. *Journal of Urban Economics*, 56(2), 244-278.

- Ades, A., & Di Tella, R. (1999). Rents, competition, and corruption. *The American Economic Review*, 89(4), 982–993.
- Almatarneh, N., & Emeagwali, O. L. (2019). Does institutional quality matter in fostering social progress: A cross-national examination. *Management Science Letters*, 9(7), 1037–1046.
- AITi Tiedemann Global & Social progress imperative (2025). 2025 AITi Global Social Progress Index. https://cdn.prod.website-files.com/6650cb66e461b93f1a906cf2/67bfb2f98d970886cd20224a_2025%20AITi%20Global%20Social%20Progress%20Index-%20report.pdf
- Antonicic, B. (2007). Intrapreneurship: a comparative structural equation modelling study. *Industrial Management & Data Systems*, 107(3), 309–325.
- Antonicic, B., & Hisrich R. D. (2003). Clarifying the intrapreneurship concept. *Journal of Small Business and Enterprise Development*, 10(1), 7–24.
- Antonicic, B., & Hisrich, R. D. (2001). Intrapreneurship: construct refinement and cross-cultural validation. *Journal of Business Venturing*, 16(5), 495–527.
- Aparicio, S., Audretsch, D., & Urbano, D. (2021). Does entrepreneurship matter for inclusive growth? The role of social progress orientation. *Entrepreneurship Research Journal*, 11(4). <https://doi.org/10.1515/erj-2019-0308>
- Aparicio, S., Turro, A., & Noguera, M. (2020). Entrepreneurship and intrapreneurship in social, sustainable, and economic development: Opportunities and challenges for future research. *Sustainability*, 12(21), 8958.
- Aparicio, S., Urbano, D., & Stenholm, P. (2019). Institutions in attracting the entrepreneurial potential: A multilevel approach. In *Academy of Management Proceedings* (Vol. 2019, No. 1, p. 15408). Briarcliff Manor, NY 10510: Academy of Management. <https://doi.org/10.5465/AMBPP.2019.15408abstract>
- Arin, K. P., Huang, V. Z., Minniti, M., Nandialath, A. M., & Reich, O. F. (2015). Revisiting the determinants of entrepreneurship: A Bayesian approach. *Journal of Management*, 41(2), 607–631.
- Armington, C., & Acs Z. (2002). The determinants of regional variation in new firm formation. *Regional Studies*, 36(2), 33–45.

- Audretsch, D. B., Boente, W., & Tamvada, J. P. (2007). Religion and entrepreneurship. *Jena Economic Research Papers* 075, Friedrich-Schiller-University Jena.
- Augusto, F. J., Rodrigues, R., & Caldeirinha, V. R. (2012). The effect of intrapreneurship on corporate performance. *Management Decision*, 50(10), 1717–1738.
- Avnimelech, G., & Zelekha, Y. (2015). The impact of corruption on entrepreneurship. In *International Business Ethics and Growth Opportunities* (pp. 282-294). IGI Global Scientific Publishing.
- Avnimelech, Y., Zelekha, Y., & Sharabi, E. (2014). The effect of corruption on entrepreneurship in developed vs non-developed countries. *International Journal of Entrepreneurial Behavior & Research*, 20(3), 237-262.
- Baltagi, B. H. (2005). *Econometric Analysis of Panel Data*. 3rd ed., John Wiley and Sons Ltd., England.
- Basingab, A., Turro, A., & Urbano, D. (2024). Determinants of entrepreneurial employee activity in Saudi Arabia. *Entrepreneurship Research Journal*, 14(4), 1951-1974. <https://doi.org/10.1515/erj-2022-0207>
- Bates, T. (1990). Entrepreneur human capital inputs and small business longevity. *Review of Economics and Statistics*, 72(4), 551–559.
- Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education* (Vol. 3). Chicago: University of Chicago Press.
- Becker, G. S. (2002). The age of human capital, in: Lazear, E. P. (Ed.), *Education in the twenty-first century*. Stanford, CA: Hoover Institution Press, p. 3–8.
- Benz, M., & Frey, B. S. (2008). The value of doing what you like: evidence from the self-employed in 23 countries. *Journal of Economic Behaviour & Organisation*, 68(3-4), 445-455. doi:10.1016/j.jebo.2006.10.014
- Berggren, N., & Nilsson, T. (2016). Tolerance in the United States: Does economic freedom transform racial, religious, political and sexual attitudes?. *European Journal of Political Economy*, 45, 53-70.
- Bjørnskov, C., & Foss, N. J. (2008). Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice*, 13(4), 307–328.
- Blanchflower, D. G., & Meyer, B. D. (1994). A Longitudinal Analysis of Young Entrepreneurs in Australia and the United States. *Small Business Economics*, 6(1), 1–19.

- Blanka, C. (2019). An individual-level perspective on intrapreneurship: a review and ways forward. *Review of Managerial Science*, 13(5), 919-961. doi:10.1007/s11846-018-0277-0
- Bloom, D. E., & Canning, D. (2000). The health and wealth of nations. *Science*, 287(5456), 1207-1209.
- Bosma, N. S., Abdul, A., Michael, D., Eltobgy, M., Gratzke, P., Hart, M., & O'Neill, M. (2016). Europe's Hidden Entrepreneurs: Entrepreneurial Employee Activity and Competitiveness. *World Economic Forum*. https://dspace.library.uu.nl/bitstream/handle/1874/347136/Entrepreneurship_in_Europe_Final.pdf?sequence=1.
- Bosma, N. S., Stam, E., & Wennekers, S. (2011). Intrapreneurship versus independent entrepreneurship: A cross-national analysis of individual entrepreneurial behaviour. Tjalling Koopmans Institute Working Paper 11-04. Utrecht: Utrecht University School of Economics.
- Bosma, N. S., Stam, E., & Wennekers, S. (2012). Entrepreneurial employee activity: A large scale international study. Discussion Paper Series/Tjalling C. Koopmans Research Institute, 12(12).
- Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroskedasticity and random coefficient variation. *Econometrica*, 47(5), 1287-1294.
- Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its application to model specifications in econometrics. *Review of Economic Studies*, 47(1), 239-253.
- Brigić, M., & Umihanović, B. (2015). Intrapreneurship impact on the growth of production companies in Bosnia and Herzegovina. *Ekonomski Vjesnik*, 28(2), 393-408. https://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=221349
- Bygrave, W. D. (2004). The entrepreneurial process. In Bygrave W. & Zacharkis A.E. (Eds.), *The portable MBA in entrepreneurship* (pp. 1-28). Hoboken, NJ: John Wiley & Sons.
- de Leede, J. (2016). New ways of working practices: Antecedents and outcomes. Bingley: Emerald Group Publishing.
- Dyczewski, L., & Sławik, Z. (2016). Values – The core of culture. *Politeja*, 13(5(44)), 143-170. DOI: 10.12797/Politeja.13.2016.44.10
- Elert, N., Stam, E., & Stenkula, M. (2019). Intrapreneurship and trust. Working paper series 1280, *Research Institute of Industrial Economics*. https://www.uu.nl/sites/default/files/rebo_use_wp_2019_1908.pdf.

- Estes, R. J., & Morgan, J. S. (1976). World social welfare analysis: A theoretical model. *International Social Work*, 19(2), 29-41.
- Florida, R. (2014). The creative class and economic development. *Economic Development Quarterly*, 28, 196-205.
- Florida, R., Mellander, C., & Stolarick, K. (2008). Inside the black box of regional development: human capital, the creative class and tolerance. *Journal of Economic Geography*, 8(5), 615-649.
- Gerards, R., van Wetten, S., & van Sambeek, C. (2021). New ways of working and intrapreneurial behaviour: the mediating role of transformational leadership and social interaction. *Review of Managerial Science*, 15(7), 2075-2110. <https://doi.org/10.1007/s11846-020-00412-1>
- Ghazaoui, K., & Emeagwali, O. L. (2021). The effect of business regulation on social progress. *International Journal of Data and Network Science*, 5, 55-62. DOI: 10.5267/j.ijdns.2020.11.002
- Ghoshal, S., Hahn, M., & Moran, P. (1999). Management competence, firm growth and economic progress. *Contributions to Political Economy*, 18(1), 121-150. DOI: 10.1093/cpe/18.1.121
- Giannetti, M., & Simonov, A. (2009). Social interactions and entrepreneurial activity. *Journal of Economics & Management Strategy*, 18(3), 665-709.
- Global Entrepreneurship Monitor (2020). Entrepreneurial behaviour and attitudes. <https://www.gemconsortium.org/data>.
- Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy*, 80(2), 233-255.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1251-1271. DOI: 10.2307/1913827
- Henley, A. (2016). Does religion influence entrepreneurial behaviour?. *International Small Business Journal*, 35(5), 597-617. http://www2.wiwi.uni-jena.de/Papers/jerp2007/wp_2007_075.pdf.
- Huang, L. Y., Yang Lin, S. M., & Hsieh, Y. J. (2021). Cultivation of intrapreneurship: A framework and challenges. *Frontiers in Psychology*, 12, 731990. <https://doi.org/10.3389/fpsyg.2021.731990>
- ILO (2019). World employment and social outlook - Trends 2019. *Labour Market Trends and Policy Evaluation Unit of the ILO Research Department*. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_670542.pdf.
- International Monetary Fund (2020). World economic outlook database. <https://www.imf.org/en/Publications/WEO/weo-database/2020/October>.

- Jiménez, A., Palmero-Cámara, C., González-Santos, M. J., González-Bernal, J., & Jiménez-Eguizábal, J. A. (2015). The Impact of Educational Levels on Formal and Informal Entrepreneurship. *Business Research Quarterly*, 18(3), 204-212. doi:10.1016/j.brq.2015.02.002
- Kirchhoff, B., Hassan, I., Armington, C., & Newbert, S. (2002). The influence of R&D expenditures on new firm formation and economic growth. Washington, DC: *National Commission on Entrepreneurship*, 27, 4-24. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.571.3692&rep=rep1&type=pdf>.
- Kostova, T. (1997). Country institutional profiles concept and measurement. In Academy of management proceedings (Vol. 1997, No. 1, pp. 180-184). Briarcliff Manor, NY 10510: *Academy of Management*. <https://doi.org/10.5465/ambpp.1997.4981338>
- Lee, S. Y., Florida, R., & Acs, Z. (2004). Creativity and entrepreneurship: A regional analysis of new firm formation. *Regional Studies*, 38(8), 879-891.
- Leibenstein, H. (1957). The theory of underemployment in backward economies. *Journal of Political Economy*, 65(2), 91-103.
- Ljunge, M., & Stenkula, M. (2021). Fertile soil for intrapreneurship: Impartial institutions and human capital. *Journal of Institutional Economics*, 17(3), 489-508. doi:10.1017/S1744137420000612
- Macedo, M. G., Santos, V., Tolentino, R., & Martins, H. (2021). Intrapreneurship, innovation, and competitiveness in organization. *International Journal of Business Administration*, 12(2), 1-14. 10.5430/ijba.v12n2p1.
- Méndez-Picazo, M.T., Galindo-Martín, M. A., & Castaño-Martínez, M. S. (2021). Effects of sociocultural and economic factors on social entrepreneurship and sustainable development. *Journal of Innovation & Knowledge*, 6(2), 69-77. www.doi:10.1016/j.jik.2020.06.001
- Mims, C. (2013). Google's "20% time," which brought you Gmail and AdSense, is now as good as dead. QUARTZ: <https://qz.com/115831/googles-20-time-which-brought-you-gmail-and-adsense-is-now-as-good-as-dead>
- Moriano, J. A., Molero, F.; Topa, G., & Mangin, J. P. L. (2014). The influence of transformational leadership and organisational identification on intrapreneurship. *International Entrepreneurship and Management Journal*, 10(1) 103-119.

- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- North, D. C. (1994). Economic performance through time. *The American Economic Review*, 84(3), 359–368. <https://www.jstor.org/stable/2118057>
- Parker, S. (2004). *The economics of self-employment and entrepreneurship*. Cambridge: Cambridge University Press.
- Perlo-Freeman, S., & Webber, D. J. (2009). Basic needs, government debt and economic growth. *World Economy*, 32(6), 965-994.
- Pinchot, G. (1985). Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.
- Remeikienė, R., & Startienė, G. (2009). Does the interaction between entrepreneurship and unemployment exist?. *Economics and Management*, 14, 903-911.
- Rose-Ackerman, S. (2002). “Grand” corruption and the ethics of global business. *Journal of Banking & Finance*, 26(9), 1889-1918.
- Rusu, V. D., & Roman, A. (2016). Characteristics of the entrepreneurial environment in European Union Countries: A comparative analysis. *European Integration: Realities and Perspectives Proceedings*, 11(1), 380-389.
- Rusu, V. D., & Roman, A. (2017). Entrepreneurial activity in the EU: An empirical evaluation of its determinants. *Sustainability*, 9(10), 1-16.
- Sachs, J., Schmidt-Traub, G., Kroll, C., Durand-Delacre, D., & Teksoz, K. (2016). *SDG Index and Dashboards – Global Report*. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network SDSN.
- Salman, D. M. (2014). Mediating role of research and development on entrepreneurial activities and growth: Evidence from cross-country data. *World Journal of Entrepreneurship, Management and Sustainable Development*, 10(4), 300–313. 10.1108/WJEMSD-11-2013-0056
- Schrage, M. (2013). Just How Valuable Is Google’s “20% Time”?. *Harvard Business Review*. <https://hbr.org/2013/08/just-how-valuable-is-googles-2-1>
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17. <https://www.ssc.wisc.edu/~walker/wp/wp-content/uploads/2012/04/schultz61.pdf>

- Sen, A. (1999). Development as freedom. Oxford University Press, 366 pages.
- Shepherd, D. A., & Patzelt, H. (2015). The “heart” of entrepreneurship: The impact of entrepreneurial action on health and health on entrepreneurial action. *Journal of Business Venturing Insights*, 4, 22-29.
- Shir, N., Nikolaev, B. N., & Wincent, J. (2019). Entrepreneurship and well-being: The role of psychological autonomy, competence, and relatedness. *Journal of Business Venturing*, 34(5), 105875. doi:10.1016/j.jbusvent.2018.05.002
- Social Progress Imperative (2018). Global index: Methodology. <https://www.socialprogress.org/index/global/methodology>.
- Social Progress Imperative (2020a). Social progress imperative's database (2020). <https://www.socialprogress.org/index/global>.
- Social Progress Imperative (2020b). Social Progress Index global findings. <https://www2.deloitte.com/content/dam/Deloitte/fi/Documents/about-deloitte/2020%20Social%20Progress%20Index%20global%20findings%20.pdf>
- Stam, E. (2013). Knowledge and entrepreneurial employees: A country-level analysis. *Small Business Economics*, 41(4), 887–898.
- Stern, S., Wares, A., Orzell, S., & O'Sullivan, P. (2014). Social progress index 2014. *Methodological Report*. Cambridge, MA: Social Progress Imperative.
- Stiglitz, J. E., Sen, A., & Fitoussi, J. P. (2009). Report by the commission on the measurement of economic performance and social progress. <https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf>
- Tan, C. (2017). Lifelong learning through the skills future movement in Singapore: Challenges and prospects. *International Journal of Lifelong Education*, 36(3), 278-291. doi:10.1080/02601370.2016.1241833
- Thurik, A. R., Carree, M. A., van Stel, A., & Audretsch, D. B. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing*, 23(6), 673–686.
- United Nations General Assembly (1969). Declaration on social progress and development. *GA Resolution*, 2542.
- Urbano, D., Aparicio, S., & Audretsch, D. B. (2019). Institutional context, entrepreneurial activity, and social progress. In *Institutions, Entrepreneurship, and Economic Performance* (Vol. 41, pp. 131-149).

- Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-13373-3_6
- Urbano, D., S. Aparicio, S., & Querol, V. (2016). Social progress orientation and innovative entrepreneurship: An international analysis. *Journal of Evolutionary Economics*, 26(5), 1033–1066.
- Ute, S. (2018). Entrepreneurs' Mental Health and Well-Being: A Review and Research Agenda. *Academy of Management Perspectives*, 32(3), 290–322.
- Waseem, A. (2018). Female necessity and opportunity entrepreneurship: a study of income level and social progress. *Pakistan Journal of Women's Studies*, 25(1), 127–149. DOI: 10.46521/pjws.025.01.0058
- Wooldridge, J. (2002). *Econometric analysis of cross section and panel data*. MIT Press, Cambridge, Massachusetts London, England.
- World Bank (2020). World development indicators. <https://data.worldbank.org/>.
- Zelekha, Y. (2013). A note on public sector's corruption equilibrium and network economy. *Public Administration Review*, 2(2), 185–190. 10.5539/par.v2n2p185.