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RESEARCH ARTICLE

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When education sticks: early imprints and sociopreneurship in emerging economies

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ABSTRACT

This study examines how entrepreneurship education and training (EET) influences sociopreneurship in emerging economies. Drawing on dynamic imprinting theory, we argue that EET received at different stages of life leaves imprints of unequal durability, and that the expression of those imprints depends on supportive institutional conditions. Using Global Entrepreneurship Monitor Adult Population Survey and National Expert Survey data from 26 emerging economies from 2002 to 2022, we distinguish between basic-school and post-school EET and assess how commercial and professional infrastructure, country-level cultural and social norms shape their relationship with sociopreneurship. The findings show that basic-school EET is positively associated with sociopreneurship, suggesting that earlier educational exposure creates more durable prosocial and opportunity-oriented imprints. By contrast, post-school EET is weak or insignificant on average but becomes positively associated with sociopreneurship where institutional infrastructure and cultural norms are more supportive. These results extend dynamic imprinting theory by showing that educational imprints vary by timing and that institutions operate not merely as background conditions but as mechanisms that reactivate latent imprints. The study contributes to research on entrepreneurship education and social entrepreneurship and offers policy implications for early educational intervention and ecosystem development in emerging economies.

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1. Introduction

Entrepreneurship is no longer viewed solely as a vehicle for profit generation but also as a means of addressing pressing social challenges through social entrepreneurship, hereafter sociopreneurship. Sociopreneurship combines entrepreneurial principles with altruistic aims, enabling ventures to pursue economic sustainability while delivering social and environmental value (Ode et al. 2026; Santos 2012; Stephan, Uhlaner, and Stride 2015). This dual mission is especially relevant in emerging and developing economies, where institutional weaknesses, persistent inequality, and limited public sector capacity often necessitate private initiatives to complement or substitute state-led welfare

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efforts (Adomako et al. 2023; George et al. 2016). Although social entrepreneurship is well documented in advanced economies, its dynamics in emerging contexts remain underexplored, particularly regarding how individuals develop the cognitive and motivational foundations for sociopreneurial activity.

We situate the confluence of entrepreneurship education and training (EET) and the dynamic imprinting theory to expound how educational encounters across various stages of a person's life can influence sociopreneurial involvement. EET encompasses formal educational curricula, structured training frameworks, experiential learning initiatives and extracurricular programmes devised to cultivate entrepreneurial competencies such as opportunity identification, problem-solving and risk assessment (Kuratko 2005; Martin, McNally, and Kay 2013). Provocatively, EET is not monolithic. Rather, it can manifest at the foundational education level, where entrepreneurship is integrated into primary and secondary schooling, or at the post-secondary level, typically facilitated through universities, vocational institutions and ongoing professional development. While the literature demonstrates that EET enhances entrepreneurial knowledge and attitudes, it remains unclear whether these effects translate into sociopreneurial orientations, that is, an inclination to address social issues through venture creation. By disentangling basic-school from post-school EET, this study examines whether the timing of exposure to entrepreneurship education matters for sociopreneurial outcomes.

Earlier formulations of the dynamic imprinting theory emphasized that formative experiences create lasting attributes acquired during critical developmental periods, which persist even as environments change (Marquis and Tilcsik 2013). More recent work, however, argues that imprints are malleable rather than fixed; they may fade, be reinforced, or be reactivated depending on contextual triggers (Tilcsik 2014). For instance, early exposure to entrepreneurial problem-solving may remain a latent cognitive schema that becomes salient only when individuals encounter enabling conditions such as supportive mentors, institutional scaffolding, or cultural legitimation (Yu et al. 2025). Viewed through this lens, dynamic imprinting theory offers a more refined explanation of how EET functions. Basic-school EET can create durable cognitive imprints, yet their expression in sociopreneurial behaviour depends on later institutional and cultural reinforcement. This perspective integrates psychological and economic insights on early-life experiences and clarifies how the timing of educational exposure interacts with contextual conditions to shape sociopreneurial outcomes.

While studies show that early experiences during periods of heightened neuroplasticity can leave lasting imprints on cognition and decision-making (Lövdén et al. 2020; Malmendier, Tate, and Yan 2011; Nelson, Zeanah, and Fox 2019), they do not examine how early educational attainment, enriched psychosocial conditions, early sensory and environmental stimuli, or formative adversity shape cognitive schemas that later influence sociopreneurial behaviour. Likewise, developmental psychologists highlight that children and adolescents are especially receptive to value formation, identity development, and prosocial learning (Erikson 1994; Fandakova and Hartley 2020; Kolb and Gibb 2011; Z. Zhou, Qu, and Li 2022), yet this work does not explain the specific mechanisms through which basic-school education cultivates prosocial entrepreneurial values and schemas. Therefore, we argue that engaging sociopreneurs at an early age is particularly valuable because young individuals often display more receptive cognitive structures, making them more open to entrepreneurial learning and social value creation. Building on dynamic imprinting theory, we argue that this early receptivity provides a critical window of opportunity in which formative dispositions can be reinforced and reshaped through post-school experiences, provided the right institutional and cultural triggers are in place (Knowles et al. 2015; Nabi et al. 2017). This suggests that early interventions not only capitalize on cognitive openness but also lay a foundation for sustained sociopreneurial trajectories that remain adaptable to evolving contexts.

Our two decades (2002–2022) dataset encompasses 26 emerging economies across three continents, captured through four regional groupings: Latin America, Asia, the Middle East and Africa. Country dummy variables are included in the models to control for unobserved heterogeneity across

national contexts, thereby ensuring that estimates reflect within-country variation in EET and sociopreneurial engagement rather than cross-country differences (Bryan and Jenkins 2013). In operationalizing sociopreneurship, we adopt a measure consistent with prior GEM-based studies, coding individuals as sociopreneurs if they engage in early-stage ventures that explicitly pursue social, environmental or community objectives (Hechavarría et al. 2023; Hechavarria, Renko, and Matthews 2012). Emerging economies provide a rich context for understanding these dynamics. First, these contexts face acute societal challenges, including poverty, unemployment and weak institutional frameworks, making sociopreneurship particularly salient (George et al. 2016; Santos 2012). Second, entrepreneurship education in these settings is often less formalized which also raises questions about its design, accessibility and impact (Akullo et al. 2024). Third, institutional voids imply that cultural norms, commercial and professional infrastructures are variable across countries.

This study makes three theoretical contributions. First, we conceptualize EET as an imprinting source that shapes not only entrepreneurial skills but also enduring prosocial and opportunity-oriented schemas relevant to sociopreneurship. Second, we show that imprint strength varies by life-course timing. By distinguishing basic-school from post-school EET, we argue that educational experiences received during earlier formative stages are more likely to generate durable imprints, whereas later educational experiences are more contingent in their behavioural consequences. Third, we advance a more dynamic view of imprinting by showing that institutions are not merely background conditions but re-activation mechanisms. Supportive commercial and professional infrastructure and cultural-social norms help translate latent educational imprints into sociopreneurial actions. These arguments move imprinting theory beyond the simple persistence of early experience and towards a more precise explanation of how educational imprints differ in durability and become activated across contexts.

2. Sociopreneurship and EET

Sociopreneurs employ market-based solutions to address overlooked and long-standing social problems, creating both social and economic value within an economy (Kickul and Lyons 2020; Short, Moss, and Lumpkin 2009). While the importance of promoting social entrepreneurship is becoming critical, determining the most effective ways to do so remains a challenge. Social entrepreneurship can be more demanding than commercial entrepreneurship. Compared to their counterparts, social entrepreneurs strive to solve social problems quickly and bring about rapid change by finding answers to tomorrow's challenges in the present (Hechavarría et al. 2023). However, tackling social problems, which are often complex and deeply rooted requires individuals to possess specific cognitive abilities and strong capabilities. Many social issues, such as poverty and discrimination, have deep historical roots, making efforts to address them slow and resistant to change. Since social problems often stem from interconnected economic, political, country-level cultural, and environmental factors, social entrepreneurs must invest significant effort in continuously engaging stakeholders to secure necessary resources (Santos 2012).

Moreover, addressing social problems frequently involves coordinating with multiple stakeholders, including governments, NGOs, and local communities, each with competing priorities and interests (Nana, Adams, and Attah-Boakye 2024). As a result, social entrepreneurs must intentionally manage tensions and conflicting goals among them (Nana, Adams, and Attah-Boakye 2024; Smith, Gonin, and Besharov 2013). Effectively multitasking and manoeuvring among diverse stakeholders require social entrepreneurs to develop specialized cognitive abilities and skills. Without them, social entrepreneurs may experience reduced motivation and an increased likelihood of failure. For example, Patzelt and Shepherd (2024) argue that while prosocial motivation can drive social entrepreneurship efforts, it may also lead to burnout and fatigue among entrepreneurs.

Entrepreneurship education scholars have well established that the cognitions and capabilities necessary to motivate, manage, and grow entrepreneurship can be taught. This shows the importance of entrepreneurship education and training (EET) in promoting entrepreneurship (Kuratko

2005; O'Connor 2013). Galloway and Brown (2002) found that individuals who have taken entrepreneurship courses at universities tend to show higher intentions to start a new business. These individuals are also more successful in identifying opportunities than their counterparts (DeTienne and Chandler 2004). Kolvereid and Moen (1997) demonstrated that individuals who have received EET are more likely to start their businesses. From a human capital perspective, many studies argue that EET provides essential human capital for individuals to start and grow new ventures (Gimeno et al. 1997). EET generates positive effects on the formation of entrepreneurship-related human capital assets, including knowledge and skills, positive perceptions of entrepreneurship, and intentions to start a business (Martin, McNally, and Kay 2013).

Various empirical studies support these claims. For example, DeTienne and Chandler's (2004) experiment with 130 senior-level undergraduates in the United States shows that specialized entrepreneurship education interventions can help individuals learn opportunity identification processes and improve both the quantity and quality of business ideas (i.e. the number and innovativeness of business ideas). Peterman and Kennedy's (2003) study of the Youth Achievement Australia (YAA) enterprise programme reveals that participation in the YAA enterprise education programme positively influences perceptions of the desirability and feasibility of starting a business. Similarly, Athayde (2009) demonstrated the positive effects of such programmes on entrepreneurial attitudes and intentions. Beyond attitudes and intentions, EET programmes in the UK have also been shown to raise entrepreneurship inspiration (Souitaris, Zerbinati, and Al-Laham 2007).

However, existing EET research has at least two key limitations. First, while most EET studies have focused on examining the relationship between EET and entrepreneurial intentions and behaviours in general, whether and how EET can promote social entrepreneurship remains largely unknown. Building on existing work, individuals who have received EET should theoretically be more willing and capable of starting social enterprises. However, such conjectures require further exploration and examination, as the relationship between EET and entrepreneurial behaviours is not always positive. In their study of 562 college students in the Netherlands, Oosterbeek, Van Praag, and Ysselstein (2010) found a negative relationship between EET and knowledge, skills, self-efficacy, and entrepreneurial intentions. Similarly, a study of 600 first-year students in South Africa by Mentoor and Friedrich (2007) found that EET was negatively associated with knowledge, skills, and attitudes towards entrepreneurship. In Germany, Von Graevenitz, Harhof, and Weber (2010) also identified a negative relationship between EET and entrepreneurial intentions.

Second, while most existing research has focused on EET programmes at universities (i.e. post-school EET), little attention has been paid to EET programmes targeting students in primary and secondary education (i.e. basic-school EET). Understanding how basic-school EET contributes to entrepreneurship is crucial, as children in primary and secondary schools comprise the vast majority of students enrolled in education worldwide (Rosendahl Huber, Sloof, and van Praag 2014). Basic-school EET can take several forms, including project-based mini ventures, classroom market-day activities, problem-solving exercises built around local community needs, teamwork and leadership tasks, creativity and design-thinking exercises, financial-literacy modules, and school-based social action projects. Prior studies and programme evidence also suggest that age-appropriate enterprise education at the primary and secondary levels often works through experiential formats rather than abstract business instruction, because these formats help students practice opportunity recognition, empathy, collaboration, initiative, and responsibility in everyday settings. For example, school enterprise programmes such as youth challenge or mini-company activities in developed economies have been used to encourage children to identify community problems, design simple solutions, and present or implement them collectively. Although the exact programme content varies across countries, these examples illustrate the kinds of foundational interventions through which basic-school EET may cultivate entrepreneurial cognitions and prosocial orientations. The lack of research in this area makes it difficult to determine which skill development programmes are most effective in fostering entrepreneurial cognitions and behaviours and at what stage of education. This uncertainty

also complicates decision-making for policymakers seeking to allocate resources effectively to promote entrepreneurship in society (Elert, Andersson, and Wennberg 2015). Our research is therefore motivated by these two important research gaps and aims to contribute to the literature on social entrepreneurship and EET.

3. Hypothesis development

The dynamic imprinting theory explains how formative experiences acquired during sensitive stages of development persist as lasting imprints, even when external environments undergo significant change (Tilcsik 2014). Experiences refer to events, whether widespread or significant, that an individual has personally witnessed, engaged in, or participated in (Malmendier, Tate, and Yan 2011). Heterogeneous experiences, once imprinted, can exert long-term influence on individuals' implicit values, cognitive structures, and psychological traits (Marquis and Tilcsik 2013). These imprints, in turn, shape entrepreneurial cognitions and behaviours (Higgins 2005; Kish-Gephart and Campbell 2015). Dynamic imprinting theory, however, emphasizes that beyond the persistence of early imprints, their salience and behavioural expression may fade or reactivate as individuals move through life-course stages and as external environments evolve (Marquis and Tilcsik 2013; Tilcsik 2014). This makes dynamic imprinting theory particularly relevant for explaining how entrepreneurial dispositions formed through early education can be reactivated or suppressed in different institutional contexts.

According to Marquis and Tilcsik (2013, 199), imprinting is defined as 'a process whereby, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment, and these characteristics continue to persist despite significant environmental changes in subsequent periods'. Building on this notion, we argue that both basic-school and post-school EET can leave entrepreneurial imprints on individuals. In fact, EET is a process through which individuals develop critical skills including opportunity recognition, problem-solving, resource allocation, and risk management while cultivating resilience, creativity, and adaptability, and instilling entrepreneurial values and norms (Von Graevenitz, Harhof, and Weber 2010). Alongside the training process, individuals may also experience doubts and susceptibility, heightening their sensitivity to the external environment and prompting them to rethink and gradually develop characteristics that reflect the environment's prominent features (Wei, Liu, and Sha 2019).

We first hypothesize that both basic-school and post-school EET can promote social entrepreneurship by imprinting entrepreneurial cognitions and capabilities. EET programmes often cultivate problem-solving skills, creativity, and opportunity recognition (Akullo et al. 2024). During this process, participants in EET programmes have ample opportunities to brainstorm ideas, explore unconventional solutions, and experiment fostering innovation and encouraging them to think outside the box. They also build confidence and self-efficacy by participating in and learning from various entrepreneurial activities, such as designing and implementing small business ideas and community projects (Barakat, Boddington, and Vyakarnam 2014). Through these experiences, participants develop essential entrepreneurial capabilities and skills, including resilience, leadership, teamwork, strategic planning, and financial literacy (Serpente, Bolzani, and Grimaldi 2025). These imprinted entrepreneurial cognitions and capabilities nurture long-term entrepreneurial intentions and behaviours, laying the foundation for social entrepreneurship. Additionally, most participants in EET programmes are in young adulthood, a stage where they often prioritize social value creation (Carstensen 1995; Lang and Carstensen 2002). This is largely because individuals in young adulthood are characterized by a search for social connections and personal identity (Erikson 1994). They tend to seek innovative ways to improve their communities and society, define their roles in the social sphere, and gain social acceptance.

Adult learning and identity theories also suggest the positive roles played by post-school EET. Specifically, adults can be more capable of profound learning, especially when instruction aligns with lived experience, allows self-direction, and supports intrinsic motivation (Knowles et al.

2015; Ryan and Deci 2000). Identity theories further suggest that adults can reconstruct or elaborate their work identities through identity work, possible selves and role modelling, particularly when programmes create safe 'identity workspaces' to experiment with prosocial entrepreneurial selves (Ibarra 1999; Petriglieri and Petriglieri 2010). Post-school EET can enhance sociopreneurship by connecting community-based projects to learners' prior experience, emphasizing experiential cycles that consolidate skills into action, and offering identity consonance via prosocial role models and communities of practice that validate a sociopreneurial possible self (Koukpaki and Adams 2020; Nabi et al. 2017).

Sociopreneurial action unfolds at the intersection of commercial and social-welfare institutional logics, which may conflict. For instance, price discipline versus inclusiveness or be hybridized to generate novel organizational forms (Battilana and Lee 2014; Jay 2013; A.-C. Pache and Santos 2013; Thornton, Ocasio, and Lounsbury 2012). The imprints cultivated through EET such as opportunity recognition, problem framing, effectuation and bricolage, stakeholder mapping, reflective learning, and identity work constitute the microfoundations for reconciling conflicts or fostering hybridization between competing logics. These imprints equip actors with the capacity to translate social and commercial meanings into coherent value propositions, design dual metrics and governance structures that align mission with revenue and adopt paradox mindsets to navigate inherent tensions (Smith and Lewis 2011). From this perspective, EET-imprinted cognitions and capabilities are not merely generic entrepreneurial skills but function as integration mechanisms that render hybrid practices thinkable, legitimate, and executable, thereby increasing the likelihood of realizing sociopreneurial intentions. Taken together, individuals who participated in either basic-school or post-school EET programmes are more likely to conceive and launch social entrepreneurial ventures.

Hypothesis 1a: There is a positive association between basic-school EET and sociopreneurship.

Hypothesis 1b: There is a positive association between post-school EET and sociopreneurship.

Following the dynamic imprinting theory premises (Marquis and Tilcsik 2013; Tilcsik 2014), EET is likely to develop entrepreneurial imprints that promote social entrepreneurship. However, whether these imprints endure and translate into sociopreneurial actions depends on environmental contexts where imprinted cognitive and behavioural patterns are eroded or reactivated (Marquis and Tilcsik 2013). Tilcsik (2014) further suggests that the imprinting effect is strengthened when imprints align with an individual's current work environment. Conversely, these effects can diminish when the environment is incongruent. Following the imprints theoretical argument, EET is likely to develop entrepreneurial imprints that promote social entrepreneurship. However, it is important to note that imprinted cognitive and behavioural patterns can either erode or be reactivated depending on the current environment (Marquis and Tilcsik 2013). Tilcsik (2014) further suggests that the imprinting effect is strengthened when imprints align with an individual's current work environment; conversely, these effects can diminish when the environment is incongruent. Following this logic, the boundary conditions of the relationship between EET and formal and informal aspects of the institutional environment (i.e. country-level cultural norms, commercial and professional infrastructure) become fundamental facilitators of sociopreneurship.

We argue that a robust commercial and professional infrastructure plays a pivotal role in reactivating the entrepreneurial cognitions and skills imprinted by basic-school EET through its regulative, normative, and cognitive influences. Such infrastructure includes the presence of qualified legal and assessment services as well as institutions specializing in property rights, commercial practices, and accounting standards (Bennett 2019). These factors are crucial for supporting and promoting social entrepreneurship. Concerning regulative influences, qualified legal and assessment services and institutions specializing in property rights, commercial practices, and accounting standards can provide formal rules and compliance pathways that reduce uncertainty and open viable channels for sociopreneurship (Bennett 2019).

Affordable compliance and minimal bureaucracy enable aspiring sociopreneurs to channel imprinted cognitions into tangible ventures (Rosca, Agarwal, and Brem 2020), enforce contracts, foster collaboration and pool resources (Saebi, Foss, and Linder 2019). Transparent regulations and accessible market data serve a dual purpose, functioning as regulative and cognitive supports that enhance decision quality in complex environments (Stephan, Uhlaner, and Stride 2015). Normative influences, such as dense networks of start-up services, incubators, mentors, financiers, and specialized intermediaries, embed professional standards and role expectations that repeatedly cue and rehearse EET-acquired schemas – opportunity recognition, effectuation, and resource bricolage (Cohen et al. 2019; Hallen, Cohen, and Bingham 2020), thereby legitimizing prosocial aims and translating educational imprints into action. Cognitive influences reinforce this process as shared toolkits, heuristics, and venture design practices render hybrid sociopreneurial models more conceivable and actionable (Battilana and Lee 2014; Bingham and Eisenhardt 2011; Hargadon and Douglas 2001; Swidler 1986). Collectively, regulative, normative, and cognitive supports provide the institutional scaffolding that sustains or reactivates EET imprints, enabling sociopreneurship to flourish. Where commercial and professional infrastructures are weak, however, institutional voids erode imprints and impede behavioural expression. We therefore propose that imprint erosion is more likely to occur under conditions of institutional voids, where the absence of scaffolding limits the translation of educational imprints into sociopreneurial action.

Hypothesis 2a: Commercial and professional infrastructure strengthens the positive association between basic school EET and sociopreneurship.

Hypothesis 2b: Commercial and professional infrastructure strengthens the positive association between post-school EET and sociopreneurship.

In addition to the above, environments characterized by strong cultural–social norms can reactivate entrepreneurial imprints formed through basic-school EET. Entrepreneurial culture refers to organizational or societal contexts that foster and support entrepreneurial attitudes, behaviours, and values (Fritsch and Wyrwich 2014; Kibler, Kautonen, and Fink 2014). Such cultures promote societal norms (Stuetzer et al. 2017) of risk-taking, innovation, and resilience that align with principles instilled by EET. As a form of informal institution, entrepreneurial culture reflects normative values that shape attitudes, behaviours, and role expectations (Fritsch and Wyrwich 2014; Kibler, Kautonen, and Fink 2014), including risk-taking, innovation, and resilience (Stuetzer et al. 2017). These values legitimize social entrepreneurial action. From a cognitive perspective, cultural narratives, shared prototypes of 'who counts as an entrepreneur', and circulated stories provide taken-for-granted scripts that render sociopreneurial behaviour more feasible and actionable. Such normative cues and cognitive scripts can reactivate or reinforce dormant EET imprints, reduce perceived risks of nonconformity, and translate these imprints into practice. Consequently, individuals embedded in cultures valuing sociopreneurship are more likely to recall and apply EET learning, build self-efficacy, and experiment with ideas with less fear of failure (Wennberg, Pathak, and Autio 2013).

Hypothesis 3a: The positive association between post-school EET and sociopreneurship is strengthened by country-level cultural norms.

Hypothesis 3b: The positive association between basic school EET and sociopreneurship is strengthened by country-level cultural norms.

Figure 1 presents the conceptual framework underpinning the study and summarizes the hypothesized relationships among entrepreneurship education and training, institutional moderators, and sociopreneurship. The figure shows how basic-school and post-school EET are expected to influence

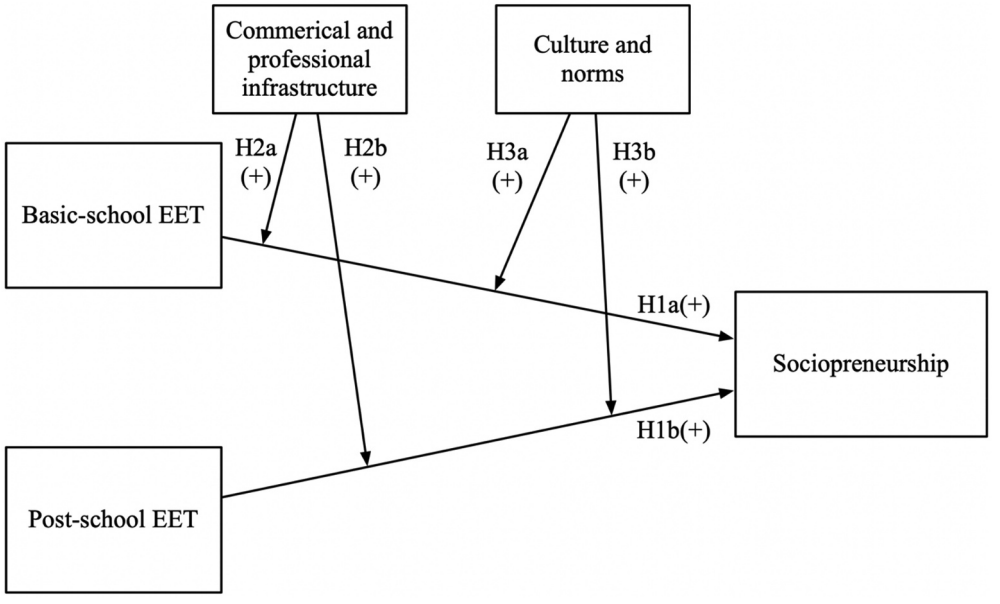

Figure 1. Conceptual framework.

sociopreneurship directly, and how commercial and professional infrastructure and country-level cultural norms strengthen these relationships.

4. Method

4.1. Data

The primary data source for this study is the Global Entrepreneurship Monitor (GEM), Adult Population Survey (APS) and the National Experts Survey (NES) database. The GEM, APS and NES databases are among the most widely recognized and utilized publicly available, cross-country, and annual individual-level database protocols for entrepreneurship research (Reynolds et al. 2005). After removing missing data and outliers, the final sample comprised 86,850 data points, representing 20 years of data spanning 2002–2022 across 26 emerging economies (see Table 2 for sample characteristics). The reliability of GEM, APS, and NES data is ensured through close collaboration between GEM data experts, national database specialists, and survey vendors. Moreover, all GEM, APS, and NES surveys undergo rigorous quality checks prior to data collection, and the resulting data is subjected to repeated scrutiny before release. These meticulous procedures, refined over years by GEM experts, ensure the highest standards of data quality.

To examine the hypotheses, we adopted the methodology of previous studies, such as Hechavarría et al. (2023), which utilized the APS database to incorporate variables like social entrepreneurship and entrepreneurs' education, specifically distinguishing between basic-school entrepreneurship education and post-secondary school entrepreneurship education. The GEM APS database investigates the role of individuals throughout the entrepreneurial lifecycle, focusing on motivations for starting a social enterprise, actions taken to initiate it, and entrepreneurship-related attitudes. Administered to a minimum of 2,000 adults in each economy, the GEM APS ensures national representativeness, with some economies having larger samples that provide regional and city-level insights. GEM database experts assert that conditions influencing new business creation are typically linked to social and institutional factors as well as entrepreneurship dynamics.

Consequently, they identify nine factors significantly impacting entrepreneurship, known as the Entrepreneurial Framework Conditions (EFCs). The NES assesses the status of the EFCs in each economy at a given point in time, providing control data that includes R&D transfer, national tax bureaucracy, and high job creation. Given the foregoing arguments, we incorporated control variables such as R&D transfer, tax bureaucracy, and high job creation.

4.2. Dependent variable

Following prior work such as Hechavarría et al. (2023), we conceptualized social entrepreneurship as a binary dependent variable coded 1 when respondents report engagement in early-stage entrepreneurial activity with explicit social, environmental, or community objectives, and 0 otherwise. In operational terms, we draw on the GEM APS indicator that identifies whether an entrepreneur owns or manages a venture pursuing socially oriented goals. While this measure provides a useful proxy for sociopreneurial activity at the individual level, it is not without limitations. It relies on self-reported classifications, which may be subject to social desirability bias or varying interpretations of what constitutes 'social' value creation. Moreover, the indicator captures only the presence of socially motivated intent rather than the broader, multidimensional character of social entrepreneurship, which encompasses mission centrality, governance structures, revenue models, and impact orientation. As such, our measure should be interpreted as a behavioural signal of early-stage social entrepreneurial engagement rather than a comprehensive assessment of the construct.

To ensure robustness, we also tested an alternative specification that defines sociopreneurship based on early ventures aimed at generating social impact such as creating local employment or pursuing innovation for social good. The findings remain consistent across both measures, reinforcing the reliability of the results. This binary approach together with the logistic regression model estimation for the dependent variable is well-established in the literature, particularly in studies utilizing GEM data. For instance, Hechavarria, Renko, and Matthews (2012) employed a binary variable to distinguish nascent social entrepreneurs, using logistic regression to examine demographic and motivational predictors. Stephan, Uhlaner, and Stride (2015) applied logistic modelling to assess how institutional configurations influence the likelihood of engaging in social entrepreneurship. Similarly, van Rijn et al. (2024) also used a binary outcome to investigate why social entrepreneurs measure their impact, drawing on GEM 2015 data. These studies demonstrate that binary operationalization with logit model are both methodologically sound and widely accepted when analysing entrepreneurial engagement in large-scale survey datasets. Accordingly, the use of a binary variable is consistent with established empirical practice and enables meaningful cross-study comparisons within the social entrepreneurship literature (Hechavarría et al. 2023; Hechavarria, Renko, and Matthews 2012; Stephan, Uhlaner, and Stride 2015).

4.3. Independent variables

To be able to test the hypotheses, we included two independent variables into the corpus of variables. These are basic-school entrepreneurship education and post-secondary entrepreneurship education. These basic-school entrepreneurship variables account for individuals' entrepreneurs who have received formal entrepreneurship education and or training at either the primary school level, while the post-secondary school entrepreneurship variables measure entrepreneurs who have received formal entrepreneurship education and or training beyond secondary school level.

4.3.1 Basic school EET

Previous empirical studies, such as Hechavarría et al. (2023) and Sarıkaya and Coşkun (2015), argue that entrepreneurship education at the basic school level significantly enhances children's social, emotional, cognitive, physical, and linguistic development. This form of education instils citizenship and life skills that enable children to contribute positively to their communities. Entrepreneurship

education at the basic school level fosters creativity, problem-solving skills, social skills, empathy, and rational thinking in children. Consequently, by introducing these concepts at an early age, it encourages students to engage in ventures that promote social good. In addition, the imprinting theory suggests that early childhood education has significant effects on adult lives. This implies that early entrepreneurial education provides more time for knowledge, skills, and attitudes to mature and manifest. Studies such as Carstensen (1995) and Lang and Carstensen (2002) argue that social-country-level cultural and patriotic values are primarily built at the basic education level. The basic-school EET variable, collected from the GEM database, captures the percentage of participants in the GEM survey educated at primary and secondary school.

4.3.2 Post school EET

While imprinting theory argues that early-stage education is critical in shaping future entrepreneurs, other studies such as Silesky-Gonzalez, Lezcano-Calderon, and Mora-Cruz (2025) posit that developmental stages occur at different stages of life (Piaget 1976; Saracho 2023). For instance, Piaget's cognitive theory suggests that cognitive structures evolve through assimilation and accommodation. Therefore, post-school entrepreneurship education was included in the variables to investigate its association with social entrepreneurship. The post-school EET variable, collected from the GEM database, captures the percentage of participants in the GEM survey educated beyond primary and secondary school. It is important to note that our measures of both basic and post-school entrepreneurial education capture country-level perceptions of the extent to which entrepreneurship is embedded within national education systems. Using NES data inevitably introduces measurement limitations, including potential expert-based subjectivity and the difficulty of aligning country-level EET conditions with individual-level entrepreneurial behaviour. We now explicitly acknowledge these constraints and discuss their implications for combining individual and contextual variables within a multilevel analytical framework.

4.4 Control variables

While studies show that social entrepreneurs' business propositions are influenced by unique personal traits and commitments to sustainable practices, innovativeness, and promoting social vision (Koe Hwee Nga and Shamuganathan 2010; Ullah et al. 2021), other scholars argue that broader country-level economic and social factors can influence the behaviour and success of social entrepreneurship in a given country (Méndez-Picazo, Galindo-Martín, and Castaño-Martínez 2021; Urbano et al. 2017). Given that the datasets were drawn from emerging economies with varied socio-country -level cutural factors, controlling for economic, social and other factors that may influence the results was necessary. Three country-level economic factors: R&D transfer, tax bureaucracy, and the level of job creation in the economy – were included. The R&D transfer data captures the extent to which R&D leads to new commercial opportunities and is available to SMEs. The tax bureaucracy variable captures the extent to which public policies on taxes or businesses encourage new start-ups. The high job creation variable captures factors that encourage or promote high job creation. The control variables were collected from the Entrepreneurial Framework Condition database, which outlines nine factors that promote or hinder entrepreneurship or new business creations in countries.

4.5 Moderating variables

To test Hypotheses 2 and 3, we incorporated two moderating variables informed by prior empirical studies: commercial and professional infrastructure (CPINF) and national culture and social norms (NCSN). We argue that country-level cultural norms and the availability of commercial and professional infrastructure influence individuals' likelihood of engaging in sociopreneurship. This view is supported by Williamson (2000) and Hechavarría et al. (2023), who emphasized the role of institutional and cultural contexts in shaping entrepreneurial behaviour. Related evidence from emerging

economies suggests that legitimacy and signalling mechanisms can materially strengthen entrepreneurial outcomes under conditions of institutional constraint (Yu et al. 2025). Additional studies reinforce this view. For example, Stephan, Uhlaner, and Stride (2015) demonstrate that institutional configurations including normative and infrastructural support significantly affect social entrepreneurial activity, while Crowley and Barlow (2022) show that regional and national differences in social capital and infrastructure are critical to entrepreneurial engagement. These findings suggest that both formal structures and informal cultural norms jointly shape the conditions under which social entrepreneurship emerges. By incorporating these moderating variables, our study aligns with a growing body of literature that emphasizes the importance of contextual factors in shaping entrepreneurship research. This approach enhances the explanatory power of our model and contributes to a more nuanced understanding of sociopreneurial dynamics across countries.

4.5.1 Commercial and professional infrastructure (CPINF)

Studies such as Kulikova et al. (2022) argue that the existence of social, commercial, and professional infrastructure forms the foundation for implementing innovative activities that promote social entrepreneurship. Additionally, research by Sud, VanSandt, and Baugous (2009) suggests that practitioners in commercial and professional services, such as lawyers, accountants, engineers, doctors, and social workers, are integral components of the broader social infrastructure aimed at promoting social good. Therefore, the availability of these services can assist and enhance the likelihood of individuals engaging in social entrepreneurship (Sud, VanSandt, and Baugous 2009). Building on these arguments, commercial and professional infrastructure was added as one of the moderating variables. The purpose is to investigate whether it could strengthen the relationship between both basic and post-school entrepreneurship education and the likelihood of individuals engaging in social entrepreneurship.

4.5.2 National-level cultural values and social norms (NCSN)

Canestrino et al. (2020) highlighted the role of values, beliefs, norms, and customs in shaping entrepreneurs' propensity to pursue socially oriented goals. They argue that country-level cultural norms and values can moderate the extent to which entrepreneurs allocate resources towards addressing social needs. Similarly, Engle, Schlaegel, and Delanoe (2011) emphasize that social norms significantly influence the intentions and motivations of sociopreneurs. Building on these insights, our study incorporates two moderating variables: country-level cultural and social norms, and entrepreneurs' fear of failure. To capture country-level cultural norms, we relied on data from the Global Entrepreneurship Monitor's National Expert Survey (GEM-NES). In this framework, experts assess cultural and social norms using a Likert scale ranging from 1 (completely false) to 9 (completely true), based on their perceptions of how strongly national culture supports entrepreneurial activity, innovation, and risk-taking. The scale reflects societal attitudes towards self-employment, tolerance of entrepreneurial failure, and the public recognition of entrepreneurs. This measure provides a useful proxy for evaluating how cultural values may foster or inhibit entrepreneurial engagement across national contexts. In our analysis, this variable is referred to as NCSN (National Cultural and Social Norms) and is consistently labelled as 'country-level cultural norms' in subsequent discussions.

4.6. Empirical model estimation

Logistic regressions were used in estimating our baseline module. First, the dependent variable *(Y)* representing *Sociopreneurship* with a binary variable of 1 if the individual is involved in sociopreneurship, 0 otherwise is used. The two main variables of interest that represent the independent variable *(X)* include basic entrepreneurial education and post-secondary entrepreneurial education. The three control variables are represented by *(Z)*. The resultant equations are presented 1 below:

$$Log\frac{P(Y=1)}{P(Y=0)} = \beta_0 + \beta_1 X + \beta_2 X + \beta_3 Z_1 + \beta_4 Z_2 + \ldots + \beta_k Z_{k-1} \quad (1)$$

Where $Log\frac{P(Y=1)}{P(Y=0)}$ represents the probability of being involved in social entrepreneurship, β_0 is our intercept, β represents the coefficient of the variables. $\beta_1 X$ represents our independent variable 1 (*entrepreneur basic school education)*, $\beta_2 X$ represents our independent variable 2 (*entrepreneur post-secondary school education), Z* represents our control variables. As part of the robustness test, an alternative estimation model (probit estimation model) to ascertain the reliability of the results was included. Consequently, the probit estimation model was operationalized using Equation 2.

$$P(Y = 1[X, Y]) = \varphi(\beta_0 + \beta_1 X + \beta_2 X + \beta_3 Z_1 + \ldots + \beta_k Z_{k-1}) \quad (2)$$

Where *P (Y = 1)* is the probability of being involved in sociopreneurship, φ is the cumulative distribution function of the standard normal distribution, β_0 is the intercept and $\beta_1, \beta_2 \ldots \beta_3$ are the coefficient for basic school and post school entrepreneurial education. $\beta_{4\ldots}\beta_k$ are the coefficients of the control variables $Z_2, Z_3 \ldots\ldots Z_{k-1}$. To be able to test the hypotheses, we used the below baseline estimation model

$$SocEtr_{i,t} = \alpha + \beta_1 BasicSchEdu_{i,t} + \beta_2 PostSchEdu_{j,t} + \beta_3 CPINFxBSE_{i,t} + \beta_4 CPINFxPSE_{i,t} + \beta_5 NCSNxBSE_{i,t} + \beta_6 NCSNxPSE_{i,t} + \sum_{i=1}^{n=3} R_n Contrvar_{i,t} + \gamma + \varepsilon_{i,t} \quad (3)$$

Where α represents the intercept of the dependent variable, *SocEtr* is the probability of being involved in social entrepreneurship, *BasicSchEdu* is the Entrepreneur's basic school education, *PostSchEdu represents the* Entrepreneur post school education. *CPINF* represents commercial and professional infrastructure *i,t* represents a period, *β* represents the regression of the explanatory variables, *γ* represents country effects, *CPINFxBSE* measure the interaction terms between commercial and professional education and basic school education, *CPINFxPSE* represents the interaction terms between commercial and professional education and post-secondary school education. *NCSNxBSE* measure the interaction terms between national country-level cultural and social norms and basic school education and *NCSNxPSE* measure the interaction terms between national country-level cutural and social norms and post-secondary school education. The $\sum_{i=1}^{n=3} R_n Contrvar_{i,t}$ represent the three control variables (*R&D transfer, Government Policies on Tax and high job creation expectations*. *γ* represents the year effect and *ε* represents the error term.

4.7. Robustness

To ensure the reliability and credibility of the model estimations, several layers of robustness checks were implemented. The dataset was first cleaned by removing missing observations and extreme outliers. Following the approach of Baldini et al. (2018), a winsorizing procedure at the first and ninety ninth percentiles was applied to minimize the undue influence of extreme values that could distort the results. Because heteroscedasticity is a common feature in cross country panel data, preliminary diagnostics were conducted on the residual structure. To correct for both heteroscedasticity and autocorrelation, cluster robust standard errors were employed in line with Wooldridge's (2010) recommendations. Given that the dependent variable is binary, the baseline specification used a logit model, consistent with prior studies such as Hechavarría et al. (2023) and Estrin, Mickiewicz, and Stephan (2016). A probit model was then estimated as an alternative functional form. The results remained stable across both estimators, suggesting that the findings are not sensitive to the choice of link function. Since the data spans multiple emerging economies, country specific effects were incorporated by

generating a full set of country dummy variables. This allowed the model to capture unobserved institutional, cultural, and economic characteristics that may systematically differ across countries.

Recognizing the complexity of behavioural outcomes in entrepreneurship research, additional attention was given to potential sources of endogeneity. In particular, the possibility of reverse causality and selection effects was considered. Individuals who are already predisposed towards prosocial or community-oriented behaviour may be more likely to select into entrepreneurial education and training programmes. If this is the case, the estimated relationship may partially reflect underlying personal traits rather than the effect of the programme itself. Although the available data does not permit a full causal identification strategy, these limitations were explicitly acknowledged and explored through a series of robustness checks. The inclusion of country fixed effects, alternative model specifications, and multiple variance covariance estimators including VCE robust, VCE bootstrapping, and VCE cluster analyses, etc helped to mitigate some of these concerns (Cameron, Gelbach, and Miller 2008). Importantly, the core results remained consistent across all specifications, which provides greater confidence that the observed associations are not merely artefacts of model choice or unaddressed heterogeneity.

While the analysis cannot fully eliminate the possibility of reverse causality or self-selection, the combination of methodological safeguards and transparent acknowledgement of these limitations strengthens the credibility of the findings and aligns with best practice in empirical research using observational data. Although the study applies multiple robustness checks and incorporates country specific controls, possible limitations remain. For example, the analysis relies on observational panel data, which could restrict the ability to draw strong causal inferences. In particular, the possibility of reverse causality cannot be fully ruled out. Individuals who already possess prosocial tendencies or entrepreneurial motivation may be more inclined to participate in entrepreneurial education and training, which introduces potential self-selection bias. While alternative model specifications and variance covariance estimators help to mitigate these concerns, they cannot eliminate them entirely. Therefore, findings should be interpreted as associations rather than definitive causal effects.

5. Results

5.1. Summary statistics and pairwise correlations

Table 1 presents the definitions of the variables used in the study, while Table 2 outlines the sample characteristics, including the percentage distribution across the 26 countries in the dataset. These countries, all classified as emerging economies, were selected based on the availability of relevant data. The final sample reflects a diverse cross-national representation suitable for examining social entrepreneurship across varying institutional contexts. The inclusion of countries in the sample was based on data availability and the study's focus on emerging markets.

The summary statistics and pairwise correlation results of the study are presented in Table 3. The analysis reveals that the probability of engaging in a new social entrepreneurship venture in emerging markets is approximately 2% on average, which is quite disappointing. Additionally, the summary results indicate that, on average, 3.24% of countries in the dataset prioritized sociopreneurship at the basic school stage, while 4.73% and 4.86% of countries prioritized post-school entrepreneurial education and commercial and professional infrastructure, respectively. Given the critical role of entrepreneurship to economic growth, these findings stress the need for governments in developing countries to prioritize entrepreneurial education at both basic and post-school educational levels. Interestingly, the pairwise correlation matrix indicates a significant relationship between basic school entrepreneurial education and the probability of an individual entering a social entrepreneurship venture. In contrast, the relationship between post-school education and the probability of engaging in social entrepreneurship was weak and negative.

Table 1. Variable definitions.

Variables	Measure	Sources
Dependent variable		
Sociopreneurship	We used a dummy variable of 1 if an individual entrepreneur own or managed a business that promotes social, environment or community objectives otherwise 0	GEM Adult Population Survey.
Independent variable		
Basic School Education	The extent to which entrepreneurial education is embedded within education and training at primary and secondary levels.	GEM National Expert Survey
Post school Education	The extent to which entrepreneurial education is embedded within education and training in higher education, colleges (post-secondary).	GEM National Expert Survey
Moderating variables		
Commercial and Professional Infrastructure *(CPINF)*	Commercial and professional infrastructure captures the extent to which the individual entrepreneur have access to professionals services, commercial services, professional training and services etc.	GEM Adult Population Survey
Country-level cutural Norms	We followed GEM-NES data in capturing country-level cultural norms. Experts assess cultural and social norms using a Likert scale, typically ranging from 1 (completely false) to 9 (completely true). These ratings reflect their perceptions of how strongly national culture supports entrepreneurial activity, innovation, and risk-taking. The scale captures attitudes towards self-employment, acceptance of entrepreneurial failure, and societal recognition of entrepreneurs. This measure helps gauge the extent to which cultural values foster or hinder entrepreneurship within a given country.	GEM Adult Population Survey
Control variables		
R&D Transfer	The extent to which R&D will lead to new commercial opportunities and is available to SMEs	GEM Adult Population Survey
Government policies: Tax Bureaucracies	The extent to which public policies support entrepreneurship – taxes or regulations are either size-neutral or encourage new SMEs	GEM National Expert Survey
High Job creation	Percentage of early entrepreneurs who expect to create six or more jobs in 5 years	GEM National Expert Survey
Country effect dummy	We assign each country a categorical number. Then convert the categorical country numbers into dummy variables so each country has its own dummy variable which takes the value 1 if the observation is from that country and 0 otherwise.	Bryan and Jenkins (2013)

5.2. Relationship between basic-school EET and sociopreneurship

The baseline regression model presented in Table 4 was used to test Hypothesis 1(a), which examines the relationship between basic school entrepreneurship education and social entrepreneurship. The analysis revealed a strong positive relationship between basic school entrepreneurship education and the probability of engaging in sociopreneurship in both the logit model 1 *($\beta = 0.610;\ p < 0.001$)* and probit model 1 *($\beta = 0.369;\ p < 0.002$)*. These findings align with imprinting theory and previous studies, such as Carstensen (1995) and Lang and Carstensen (2002), which suggest that socio-country-level cutural and patriotic values are primarily imprinted in students' minds at the basic education level. For example, research by Bisanz et al. (2019) and Floris and Pillitu (2019) indicates that early childhood entrepreneurship education, which encourages basic school children to engage in small entrepreneurial ventures, fosters creativity, independence, self-initiation, innovation, empathy, self-motivation, and societal participation. The results provide new empirical evidence highlighting the importance of prioritizing basic school education as a crucial driver for promoting sociopreneurship in emerging countries. Furthermore, the results remain consistent and even stronger when baseline regression models 1 and 2 are validated through VCE robust, VCE bootstrap, and VCE cluster analyses. In model 5 *($\beta = 0.612;\ p < 0.002$)*, model 6 *($\beta = 0.672;\ p < 0.001$)*, and model 7 *($\beta = 0.673;\ p < 0.001$)*, the findings continue to support a significant positive relationship between basic school entrepreneurship education and social entrepreneurship.

Table 2. Sample characteristics.

Country	Percentage of total sample size per country
Argentina	5.25%
Brazil	5.83%
Bulgaria	2.92%
Chile	5.83%
China	4.96%
Colombia	4.96%
Egypt	3.21%
Hungary	4.96%
India	4.37%
Indonesia	2.92%
Iran	4.37%
Malaysia	2.92%
Mexico	4.08%
Morocco	2.92%
Peru	4.08%
Poland	4.37%
Qatar	2.92%
Romania	3.21%
Russia	4.37%
Saudi Arabia	2.92%
South Africa	5.54%
Thailand	3.50%
Turkey	2.92%
United Arab Emirates	3.21%
Uruguay	3.50%
Total	100.00%

Note: * Table 2 shows the breakdown of our total sample size per country.

Table 3. Summary statistics and pairwise correlations.

Variables	Mean	Std.D.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Socio-Entrep	0.019	0.397	0.000	1.000	1.000								
(2) Basic School	3.240	0.817	0.940	7.060	0.258*	1.000							
(3) Post School	4.731	0.738	2.860	7.420	−0.018	0.657*	1.000						
(4) CPINF	4.861	0.614	2.100	6.810	0.123*	0.486*	0.505*	1.000					
(5) R&D Transfer	3.843	0.704	2.260	6.780	−0.070	0.704*	0.614*	0.536*	1.000				
(6) Tax Bureaucracy	3.854	0.946	1.780	7.510	0.065	0.492*	0.402*	0.497*	0.630*	1.000			
(7) High Job Creation	24.519	14.361	1.270	76.740	0.122*	0.163*	0.146*	0.118*	0.105	0.273*	1.000		
(8) Culture & Norms	4.736	0.820	3.220	7.850	0.121*	0.657*	0.575*	0.334*	0.621*	0.588*	0.153*	1.000	
(9) Country Effect	12.361	7.444	1.000	25.000	0.169*	0.208*	0.072	0.280*	0.139*	0.241*	0.207*	−0.025	1.000

Please note *CPINF* represents the extent to which individual entrepreneurs have access to commercial and professional services, advise, training etc. Socio-Entrep represents the probability of the individual engaging in social entrepreneurship venture, Basic school represents basic-school entrepreneurship education, Post school represents post-school entrepreneurship education in the given country* shows significance at the 0.05 level.

5.3. Relationship between post-school EET and sociopreneurship

To test Hypothesis 1 (b), a variable for post-school entrepreneurship education was incorporated into the baseline regression model in models 3 and 4 (Table 3) to examine its relationship with social entrepreneurship. Surprisingly, the results in models 3 and 4 (Table 4) indicate a negative but statistically insignificant relationship between post-school entrepreneurship education and the probability of engaging in social entrepreneurship, as shown in both the logit model 3 *($\beta = -0.111;\ p < 0.653$)* and the probit model 4 *($\beta = -0.050;\ p < 0.742$)*.

Table 4. Baseline regressions models.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Logit	Probit	Logit	Probit	Vce[robust]	Vce [Bootstrap]	Vce[cluster]
Basic School Education	0.6106***	0.3698***			0.6125***	0.6725***	0.6735****
	(0.2855)	(0.1563)			(0.3318)	(0.3797)	(0.3253)
Post school Education			−0.1116	−0.0502	−0.1116	−0.0606	−0.1116
			(0.2949)	(0.1632)	(0.3245)	(0.3162)	(0.3245)
R&D Transfer	−1.4012***	−0.8291***	−1.3488***	−0.7991***	−1.3488***	−1.3476***	−1.3466***
	(0.3587)	(0.2043)	(0.3621)	(0.2061)	(0.3417)	(0.3940)	(0.3510)
Tax Bureaucracy	0.3241	0.1973	0.2441	0.1465	0.2441	0.2441	0.2441
	(0.2040)	(0.1203)	(0.2126)	(0.1253)	(0.1775)	(0.2252)	(0.1611)
High Job Creation Exp	0.1377**	0.1386**	0.1143**	0.1186**	0.1143**	0.1143**	0.1143**
	(0.2801)	(0.2769)	(0.0102)	(0.0058)	(0.0105)	(0.0091)	(0.0112)
CPINF	0.6432***	0.5529***	0.6951***	0.7931***	0.7636***	0.6934***	0.6952***
	(0.3124)	(0.3807)	(0.3114)	(0.2733)	(0.2931)	(0.2734)	(0.2731)
Country-level cutural & Social Norms	0.2301***	0.2405***	0.2371***	0.2365***	0.3106***	0.3612***	0.3944***
	(0.2412)	(0.2330)	(0.2412)	(0.2531)	(0.1355)	(0.1324)	(0.1213)
Constant	−2.6270*	−1.6160**	−2.7321**	−1.7147**	−2.7321*	−2.7321**	−2.7321*
	(1.3816)	(0.7712)	(1.3771)	(0.7740)	(1.4352)	(1.3895)	(1.4423)
Wald chi2	25.3231***	26.0231***	25.3231***	26.0231***	26.0231***	25.3231***	26.0231***
Prob. >Chi2	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Pseudo R2	0.0786	0.0893	0.0785	0.0872	0.0884	0.0875	0.09841
Country Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Although CPINF is a moderating variable, we pushed it forward on the table to highlight its significant influence on both basic and postsecondary education in boosting *sociopreneurship* in emerging nations. Please note CPINF represents commercial and professional infrastructure Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

While these findings do not support Hypothesis 1(b), which posits a positive relationship between post-school entrepreneurship education and social entrepreneurship, other studies, such as Vázquez-Parra, García-González, and Ramírez-Montoya (2022), provide support by suggesting that students at the post-school stage have already developed various competencies and academic interests, which may interfere with their preference for social entrepreneurship. However, these findings differ somewhat from those of Hockerts (2018), who argue that social entrepreneurship education at the university level can enhance students' propensity to engage in social enterprises as part of experiential learning about their communities rather than as a social obligation. Notably, Hockerts (2018) used the 'Social Entrepreneurial Antecedents Scale' (SEAS) to measure dependent variables. As part of the robustness test, further analyses were conducted using VCE robust, VCE bootstrap, and VCE cluster methods to validate the findings. The results remained unchanged in model 5 *($\beta = -0.111$; $p = 0.663$)*, model 6 *($\beta = -0.060$; $p = 0.672$)*, and model 7 *($\beta = -0.111$; $p = 0.663$)*, confirming a negative but statistically insignificant relationship between post-school entrepreneurship education and social entrepreneurship.

Comparatively, the imprinting effect of basic school entrepreneurship education and training (EET) on sociopreneurship appears stronger. This finding aligns with the dynamic imprinting theory, which suggests that imprinting effects are more pronounced when certain experiences occur earlier in life (Marquis and Tilcsik 2013). Participants in basic school EET programmes are typically in their formative years (Erikson 1994), making entrepreneurial imprints stronger and more persistent. This observation is consistent with research across various disciplines demonstrating that early-life experiences create stronger and more lasting cognitive imprints than later exposure. For example, psychological and attachment studies show that early exposure to structured learning environments has a significant impact on long-term behaviour and decision-making patterns, supporting the notion that entrepreneurial thinking, like other cognitive skills, is best internalized during formative years (Petrovich and Gewirtz 2013; Sluckin 2017). Neuroscientific research on critical learning periods further supports this notion, showing that children's brains exhibit greater plasticity, making them more receptive to skill acquisition,

including problem-solving and innovation both essential for entrepreneurial success (Asher and García 1969). As students' progress through their education and life, they can continuously build upon these foundational lessons. In contrast, post-school entrepreneurship education and training (EET) provides a shorter window for individuals to internalize and apply entrepreneurial principles before entering the workforce (Silesky-Gonzalez, Lezcano-Calderon, and Mora-Cruz 2025). It often stands alone or specialized, which may limit the holistic application of entrepreneurial principles.

Furthermore, introducing entrepreneurial education at a young age fosters the development of lifelong habits such as curiosity, initiative, resilience, and goal-setting. Beyond essential skill development, early exposure to entrepreneurial thinking shapes an individual's foundational approach to problem-solving, creativity, and risk-taking (Huber, Sloof, and Van Praag 2014). By the time students reach post-school education, cognitive and emotional development is more established, making it relatively more challenging to instil an entrepreneurial mindset (Sun, Shi, and Zhang 2023). Children and adolescents tend to have fewer fears of failure, allowing for greater experimentation and innovation (Danne, Gers, and Altgassen 2024). Basic school education provides a low-stakes environment where students can explore entrepreneurial ideas without the risk of significant financial or reputational loss (Wei, Liu, and Sha 2019). In contrast, adults face higher stakes when engaging in entrepreneurship, making them more cautious and less willing to take risks.

While adult learning and identity perspectives predict potential benefits of post-school EET, those benefits are contingent on programme design and learner–programme alignment. In many contexts, post-school EET is delivered in short, credential-oriented, business-plan–centric formats that foreground extrinsic certification, growth templates, and commercial opportunity screening (Honig and Karlsson 2004; Nabi et al. 2017; Neck and Greene 2011; Rideout and Gray 2013). Such features may crowd out intrinsic prosocial motives, create identity misfit or 'mission drift' when prosocial aims are weakly legitimized, and offer insufficient time and dosage for reflective cycles and identity work that would translate values into action (Deci, Koestner, and Ryan 1999; Ebrahim, Battilana, and Mair 2014; Von Graevenitz, Harhof, and Weber 2010). In addition, adults who self-select into post-school EETs often seek employability or profit-oriented upskilling, and the opportunity-cost/risk calculus taught in these courses can further discourage slower-payoff social ventures given family and role obligations.

5.4. Moderating Effect of CPINF on basic-school EET and sociopreneurship

To test Hypothesis 2 (a), this study investigates whether the presence of commercial and professional infrastructure moderates the considerable positive relationship between basic school education and social entrepreneurship. Consequently, Model 4 was included in the regression analysis, as shown in Table 5, to evaluate Hypothesis 2 (a). The results of Model 4 in Table 5 reveal an even stronger positive relationship between basic school education and social entrepreneurship $(\beta = 0.756;\ p < 0.001)$ when commercial and professional education is interacted with basic school education. This result implies that emerging countries are more likely to benefit from a significant number of social entrepreneurship ventures if they provide basic school entrepreneurship education and establish robust commercial and professional infrastructure.

5.5. Moderating effect of CPINF on post-school EET–sociopreneurship relationship

To test Hypothesis 2 (b), Model 5 was included in the regression analysis, as shown in Table 5, to examine the effects of commercial and professional infrastructure on the relationship between EET and social entrepreneurship. The findings from Model 5 in Table 5 indicate that the negative association between EET and social entrepreneurship observed in Models 3 and 4 $(\beta = -0.111;\ p = 0.653;\ \beta = -0.050;\ p = 0.742)$ becomes positive and significant in Model 5 $(\beta = 0.232;\ p = 0.051)$ when EET is interacted with commercial and professional infrastructure. This

Table 5. Moderations effects.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Logit [robust]	Logit [robust]	Logit [robust]	Logit [robust]	Logit [robust]	Logit [robust]	Logit [robust]
Basic School Education	0.6125***						
	(0.2869)						
Post school education	−0.0524	−0.1617					
	(0.3098)	(0.3125)					
R&D transfer	−1.3488***	−1.3817***	−1.3741***	−1.4338***	−1.3274***	−1.3772***	−1.3784***
	(0.3621)	(0.3693)	(0.3666)	(0.3842)	(0.3683)	(0.3667)	(0.3662)
Tax Bureaucracy	0.2441	0.2015	0.1498	0.0590	0.2217	0.1515	0.1532
	(0.2126)	(0.2292)	(0.2417)	(0.2601)	(0.2556)	(0.2419)	(0.2422)
High Job creation expectation	0.1143**	0.1144**	0.1116**	0.1151**	0.1123**	0.1230**	0.1122**
	(0.0102)	(0.0102)	(0.0104)	(0.0127)	(0.0105)	(0.0565)	(0.0106)
BSE x CPINF				0.7562****			
				(0.0013)			
PSE x CPINF					0.2531**		
					(0.2741)		
BSE x Culture Norms						0.6483**	
						(0.0110)	
PSE x Country-level cutural Norms							0.5478***
							(0.0241)
Constant	−2.7321**	−2.9275**	−3.2414**	−3.1004**	−4.1098**	−3.5919*	−3.8272*
	(1.3771)	(1.4326)	(1.4604)	(1.5769)	(1.7584)	(2.2441)	(2.3217)
Wald chi2	25.3231***	26.0231***	25.3231***	26.0231***	25.3231***	26.0231***	25.3231***
Prob. > Chi2	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Pseudo R2	0.0786	0.0893	0.0785	0.0872	0.9743	0.0887	0.0872
Country Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: BSE represents Basic-school entrepreneurship education, CPE represents commercial and professional training and services, BSE represents Basic-school entrepreneurship education, Country-level cutural norms represent national country-level cutural and social norms. Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

result shows the role of commercial and professional infrastructure in countries as a factor for encouraging individuals to engage in social entrepreneurship ventures even at the post-school level.

The findings suggest that the availability of commercial and professional infrastructure, such as access to social network groups and support in areas like legal, accounting, financial advice and community networking, can increase the likelihood of individuals pursuing social entrepreneurship ventures in emerging economies. These results contribute to the literature on social entrepreneurship and align with studies including those by A. C. Pache and Chowdhury (2012) which argue that entrepreneurial education or training that includes institutional professional and commercial logic fosters social citizenship awareness which promotes social entrepreneurship. A. C. Pache and Chowdhury (2012) also state that social enterprises often receive support and ideas from a network of commercial stakeholders, including vocational institutions, professional bodies, support services, community groups and volunteer organizations. Also satisfied and loyal clients are important for the success and operations of social enterprises.

5.6. Country-level cultural norms and basic-school education–sociopreneurship link

To test Hypothesis 3 (a), this study investigated whether national country-level cutural norms strengthen the positive relationship between basic-school entrepreneurship education and training (EET) and social entrepreneurship. To achieve this, interactive terms between basic-school EET and national country-level cutural norms were included in Model 6 of Table 5. The results from Model 6 in Table 5 revealed a significant positive association *($\beta = 0.648$; $p < 0.001$)* between the interaction term (BSE x National Culture and Social Norms) and sociopreneurship. These findings corroborate previous empirical studies, such as Canestrino et al. (2020) and Pounder (2021), which argue that

national country-level cutural norms, values, and beliefs play a crucial role in shaping individuals' propensity to pursue business ventures that promote social or community good.

5.7. Country-level norms as moderators of the education and sociopreneurship link

To test Hypothesis 3 (b), this study investigated whether national country-level cultural norms moderate the relationship between post-secondary school entrepreneurship education and training (EET) and sociopreneurship. To achieve this, interactive terms between post-secondary school EET and national country-level cultural norms were included in Model 7 of Table 5. The results from Model 7 in Table 5 revealed a significant positive association *($\beta = 0.547$; $p < 0.001$)* between the interaction term (post-secondary school EET × National Culture and Social Norms) and sociopreneurship. These findings are consistent with previous research, which argues that national culture shapes social values, individual aspirations, and expectations (Canestrino et al. 2020; Hechavarría 2016). Consequently, societal country-level cultural aspirations, values, and expectations can influence individuals' propensity to pursue business ventures that promote social or community good (Hechavarría 2016; Hechavarría et al. 2023). In addition to these observations, a consistent positive association was identified between high job creation expectations and social entrepreneurship across all models in both Tables 4 and 5, while R&D transfer consistently showed a negative association with social entrepreneurship. These findings imply that promoting social entrepreneurship can enhance job creation and economic growth within communities in emerging countries.

6. Discussion

6.1. Theoretical contributions

The findings make several contributions to social entrepreneurship, EET, and imprinting research. First, this study extends dynamic imprinting theory by conceptualizing entrepreneurship education and training (EET) as an imprinting source that shapes not only entrepreneurial capabilities but also enduring prosocial and opportunity-oriented schemas relevant to sociopreneurship. Existing EET studies have well established the positive role of education in commercial entrepreneurship. It has been generally argued that EET can motivate entrepreneurship intention (Galloway and Brown 2002) and equip individuals with essential human capital for individuals to start and grow new ventures (Athayde 2009; Gimeno et al. 1997; Martin, McNally, and Kay 2013). Although insightful, whether EET programmes promote sociopreneurial behaviours has remained unknown. Compared with commercial entrepreneurs, sociopreneurs theoretically require more educational and institutional supports since they urgently strive to solve complex and longstanding social problems. Our results from analysing GEM data show that EET, especially at the basic-school stage, is significantly positive to the promotion of sociopreneurship in society. In this regard, our contribution goes beyond treating EET simply as a human capital intervention and instead shows how educational exposure can leave lasting cognitive and behavioural traces that later shape socially oriented entrepreneurial action. This contribution is important and timely against the context where more understanding of how education and strong institutions can motivate and help entrepreneurs tackle grand challenges.

Second, our study contributes to the imprinting and EET literature by highlighting the critical role of timing in shaping social entrepreneurial outcomes. Specifically, we find that basic-school entrepreneurship education significantly enhances sociopreneurship, whereas post-school EET shows a weak or insignificant association unless supportive contextual conditions are present. This suggests that educational imprints vary in strength and durability across life-course stages. Accordingly, our study moves beyond the broad claim in prior imprinting work that early experiences persist, by showing more precisely that educational experiences received during earlier formative stages are more likely to generate durable imprints, whereas later educational experiences are more contingent in their behavioural consequences. Thus,

students participating in basic-school EET programmes are at their younger age and experiencing a sensitive period makes the entrepreneurial imprints stronger and more persistent (Erikson 1994). Children and adolescents with greater neuroplasticity may benefit from EET programmes and consider contributions to society through entrepreneurship (Fandakova and Hartley 2020; Tymofiyeva and Gaschler 2021). In this sense, disentangling basic-school from post-school EET does not merely show that timing matters empirically; it also extends imprinting theory by clarifying how imprint durability differs depending on when educational exposure occurs.

Third, this study advances a more dynamic view of imprint expression by showing that institutions are not merely background conditions but reactivation mechanisms through which latent educational imprints are translated into sociopreneurial action. While previous research often treats institutional conditions as contextual enablers, constraints, or controls, our findings suggest that supportive commercial and professional infrastructure and socio-cultural norms more actively reinforce and reactivate educational imprints. In particular, socio-cultural norms offer informal institutional reinforcement through societal legitimization of entrepreneurship, tolerance of failure, and celebration of prosocial innovators (Fritsch and Wyrwich 2014; Hechavarría 2016). Likewise, formal commercial and professional infrastructure provides the practical scaffolding that enables individuals to act on earlier entrepreneurial and prosocial dispositions. Taken together, these findings extend dynamic imprinting theory beyond the simple persistence of early experience and towards a more precise explanation of how educational imprints differ in durability and become activated across contexts. Further, using a large cross-national dataset, this study demonstrates how educational imprints and institutional conditions jointly foster socially oriented entrepreneurial action across diverse emerging economy contexts.

6.2. Implications for practice and policy

Our results, interpreted through dynamic imprinting theory, indicate the value of introducing structured entrepreneurial learning in primary and secondary schooling, where developmental sensitivity supports durable imprints (Bisanz et al. 2019). The weak or insignificant association between post school EET and sociopreneurship in our models suggests that higher education formats do not reliably convert intentions into action unless they align with supportive ecosystems. Universities should adopt experiential and community engaged designs that link learners to social ventures, field projects and role models (Hockerts 2018; Nabi et al. 2017). Investments that reduce uncertainty and provide advisory services and finance can reactivate early imprints and channel them into venture creation (Bennett 2019).

Policies that normalize entrepreneurial problem solving and social value creation through role models, community initiatives and public narratives can strengthen the pathway from education to action by reducing fear of failure and legitimizing experimentation (Wennberg, Pathak, and Autio 2013). Because institutional conditions shape whether imprints are expressed, reforms that reduce bureaucratic frictions, open compliance pathways and widen access to commercial and professional services are central to enabling sociopreneurs (Stephan, Uhlaner, and Stride 2015). Policy should be inclusive, with targeted support for women and marginalized groups so that opportunities to act on sociopreneurial intentions are widely distributed (Hechavarría 2016).

The key message is that outcomes depend on the interplay between EET, timing and the wider ecosystem. Education should be designed as an imprinting process that starts early and is then reinforced through fit with later institutional scaffolding. Higher education providers can support this by forming cross sector partnerships with social enterprises, public agencies and industry, and by embedding apprenticeships, incubators and community-based projects that translate knowledge into practice. These arrangements maintain and reactivate earlier imprints and increase the likelihood that learning converts into social ventures (Saebi, Foss, and Linder 2019).

6.3. Limitations and future research

The GEM dataset provides broad coverage of entrepreneurial activity but relies on aggregate level indicators that cannot capture individual psychological and social processes shaping engagement (Hechavarría et al. 2023). Future work should use longitudinal designs that follow individuals over time to identify how early entrepreneurship education affects later behaviour, especially in weak institutional contexts. Given the negative or statistically insignificant association between post school education and sociopreneurship in our models, research should examine the mechanisms that limit the effectiveness of later stage education. Studies should also assess whether digital delivery and related technological innovations can improve access and programme design where conventional training is constrained, particularly given growing evidence on the role of technology in enabling innovation for social good (Q. Zhou et al. 2025). Reciprocal relationships may exist between education and sociopreneurship, for example when participation in social ventures influences subsequent educational choices. Our aim here was to estimate the predictive association between basic school education and the likelihood of becoming a social entrepreneur. The logit model is suitable for a binary outcome and assumes a one-way influence from predictors to outcome. Although we do not model reciprocal causality, future research could apply longitudinal designs or structural equation modelling to test such pathways. Additional estimations with robust and cluster variance corrections may address heteroskedasticity within cluster correlation. While these adjustments may not resolve model structure or causality, they could improve the reliability of the statistical inferences.

Author contributions

CRediT: **Rexford Attah-Boakye:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing; **Kweku Adams:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing; **Honglan Yu:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing; **Yameng Zhang:** Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing; **Dafydd Mali:** Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing; **Abraham Adu:** Conceptualization, Data curation, Methodology, Writing – original draft, Writing – review & editing.

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References

Adomako, S., S. G. Abdelgawad, M. Ahsan, J. Amankwah-Amoah, and T. A. Liedong. 2023. "Nonmarket Strategy in Emerging Markets: The Link Between SMEs' Corporate Political Activity, Corporate Social Responsibility, and Firm Competitiveness." *The Journal of Business Research* 160:113767. https://doi.org/10.1016/j.jbusres.2023.113767.

Akullo, G., E. Aracil, S. Mwaura, and C. McMillan. 2024. "Beyond Teaching: The Extended Role of Informal Entrepreneurship Education and Training in Challenging Contexts." *International Journal of Entrepreneurial Behavior & Research*. Advance online publication. 31 (8): 2049–2071. https://doi.org/10.1108/IJEBR-09-2023-0917.

Asher, J. J., and R. García. 1969. "The Optimal Age to Learn a Foreign Language." *Modern Language Journal* 53 (5): 334–341. https://doi.org/10.1111/j.1540-4781.1969.tb04603.x.

Athayde, R. 2009. "Measuring Enterprise Potential in Young People." *Entrepreneurship Theory and Practice* 33 (2): 481–500. https://doi.org/10.1111/j.1540-6520.2009.00300.x.

Baldini, M., L. Dal Maso, G. Liberatore, F. Mazzi, and S. Terzani. 2018. "Role of Country- and Firm-Level Determinants in Environmental, Social, and Governance Disclosure." *Journal of Business Ethics* 150 (1): 79–98. https://doi.org/10.1007/s10551-016-3139-1.

Barakat, S., M. Boddington, and S. Vyakarnam. 2014. "Measuring Entrepreneurial Self-Efficacy to Understand the Impact of Creative Activities for Learning Innovation." *The International Journal of Management Education* 12 (3): 456–468. https://doi.org/10.1016/j.ijme.2014.05.007.

Battilana, J., and M. Lee. 2014. "Advancing Research on Hybrid organizing—Insights from the Study of Social Enterprises." *Academy of Management Annals* 8 (1): 397–441. https://doi.org/10.5465/19416520.2014.893615.

Bennett, D. L. 2019. "Infrastructure Investments and Entrepreneurial Dynamism in the U.S." *Journal of Business Venturing* 34 (5): 105907. https://doi.org/10.1016/j.jbusvent.2018.10.005.

Bingham, C. B., and K. M. Eisenhardt. 2011. "Rational Heuristics: The 'Simple rules' That Strategists Learn from Process Experience." *Strategic Management Journal* 32 (13): 1437–1464. https://doi.org/10.1002/smj.965.

Bisanz, A., S. Hueber, J. Lindner, and E. Jambor. 2019. "Social Entrepreneurship Education in Primary School: Empowering Each Child with the YouthStart Entrepreneurial Challenges Programme." *Discourse and Communication for Sustainable Education* 10 (2): 142–156. https://doi.org/10.2478/dcse-2019-0024.

Bryan, M. L., and S. P. Jenkins. 2013. "*Regression Analysis of Country Effects Using Multilevel Data: A Cautionary Tale* (No. 2013-14)." ISER working paper series.

Cameron, A. C., J. B. Gelbach, and D. L. Miller. 2008. "Bootstrap-Based Improvements for Inference with Clustered Errors." *The Review of Economics and Statistics* 90 (3): 414–427. https://doi.org/10.1162/rest.90.3.414.

Canestrino, R., M. Ćwiklicki, P. Magliocca, and B. Pawełek. 2020. "Understanding Social Entrepreneurship: A Country-Level Cutural Perspective in Business Research." *The Journal of Business Research* 110:132–143. https://doi.org/10.1016/j.jbusres.2020.01.006.

Carstensen, L. L. 1995. "Evidence for a Life-Span Theory of Socioemotional Selectivity." *Current Directions in Psychological Science* 4 (5): 151–156. https://doi.org/10.1111/1467-8721.ep11512261.

Cohen, S., D. C. Fehder, Y. V. Hochberg, and F. Murray. 2019. "The Design of Startup Accelerators." *Research Policy* 48 (7): 1781–1797. https://doi.org/10.1016/j.respol.2019.04.003.

Crowley, F., and P. Barlow. 2022. "Entrepreneurship and Social Capital: A Multi-Level Analysis." *International Journal of Entrepreneurial Behavior & Research* 28 (9): 492–519. https://doi.org/10.1108/IJEBR-10-2021-0868.

Danne, V., B. Gers, and M. Altgassen. 2024. "Is the Association of Procrastination and Age Mediated by Fear of Failure?" *Journal of Rational-Emotive & Cognitive-Behavior Therapy* 42 (4): 433–446. https://doi.org/10.1007/s10942-023-00527-w.

Deci, E. L., R. Koestner, and R. M. Ryan. 1999. "A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation." *Psychological Bulletin* 125 (6): 627–668. https://doi.org/10.1037/0033-2909.125.6.627.

DeTienne, D. R., and G. N. Chandler. 2004. "Opportunity Identification and Its Role in the Entrepreneurial Classroom: A Pedagogical Approach and Empirical Test." *Academy of Management Learning and Education* 3 (3): 242–257. https://doi.org/10.5465/amle.2004.14242103.

Ebrahim, A., J. Battilana, and J. Mair. 2014. "The Governance of Social Enterprises: Mission Drift and Accountability Challenges in Hybrid Organizations." *Research in Organizational Behavior* 34:81–100. https://doi.org/10.1016/j.riob.2014.09.001.

Elert, N., F. W. Andersson, and K. Wennberg. 2015. "The Impact of Entrepreneurship Education in High School on Long-Term Entrepreneurial Performance." *Journal of Economic Behavior and Organization* 111:209–223. https://doi.org/10.1016/j.jebo.2014.12.020.

Engle, R. L., C. Schlaegel, and S. Delanoe. 2011. "The Role of Social Influence, Culture, and Gender on Entrepreneurial Intent." *Journal of Small Business & Entrepreneurship* 24 (4): 471–492. https://doi.org/10.1080/08276331.2011.10593549.

Erikson, E. H. 1994. *Identity and the Life Cycle*. London: W. W. Norton & Company.

Estrin, S., T. Mickiewicz, and U. Stephan. 2016. "Human capital in social and commercial entrepreneurship." *Journal of Business Venturing* 31 (4): 449–467. https://doi.org/10.1016/j.jbusvent.2016.05.003.

Fandakova, Y., and C. A. Hartley. 2020. "Mechanisms of Learning and Plasticity in Childhood and Adolescence." *Developmental Cognitive Neuroscience* 42:100764. https://doi.org/10.1016/j.dcn.2020.100764.

Floris, M., and D. Pillitu. 2019. "Improving Entrepreneurship Education in Primary Schools: A Pioneer Project." *International Journal of Educational Management* 33 (6): 1148–1169. https://doi.org/10.1108/IJEM-09-2018-0283.

Fritsch, M., and M. Wyrwich. 2014. "The Long Persistence of Regional Levels of Entrepreneurship: Germany, 1925–2005." *Regional Studies* 48 (6): 955–973. https://doi.org/10.1080/00343404.2013.816414.

Galloway, L., and W. Brown. 2002. "Entrepreneurship Education at University: A Driver in the Creation of High-Growth Firms." *Education and Training* 44 (8/9): 398–405.

George, G., J. Howard-Grenville, A. Joshi, and L. Tihanyi. 2016. "Understanding and Tackling Societal Grand Challenges Through Management Research." *Academy of Management Journal* 59 (6): 1880–1895. https://doi.org/10.5465/amj.2016.4007.

Gimeno, J., T. Folta, A. Cooper, and C. Woo. 1997. "Survival of the Fittest? Entrepreneurial Human Capital and the Persistence of Underperforming Firms." *Administrative Science Quarterly* 42 (4): 750–783. https://doi.org/10.2307/2393656.

Hallen, B. L., S. L. Cohen, and C. B. Bingham. 2020. "Do Accelerators Work?" *If So, How? Organization Science* 31 (2): 378–414. https://doi.org/10.1287/orsc.2019.1304.

Hargadon, A. B., and Y. Douglas. 2001. "When Innovations Meet Institutions: Edison and the Design of the Electric Light." *Administrative Science Quarterly* 46 (3): 476–501. https://doi.org/10.2307/3094872.

Hechavarría, D. M. 2016. "The Impact of Culture on National Prevalence Rates of Social and Commercial Entrepreneurship." *International Entrepreneurship and Management Journal* 12 (4): 1025–1052. https://doi.org/10.1007/s11365-015-0376-1.

Hechavarría, D. M., S. A. Brieger, L. Levasseur, and S. A. Terjesen. 2023. "Cross-Cultural Implications of Linguistic Future Time Reference and Institutional Uncertainty on Social Entrepreneurship." *Strategic Entrepreneurship Journal* 17 (1): 61–94. https://doi.org/10.1002/sej.1450.

Hechavarria, D. M., M. Renko, and C. H. Matthews. 2012. "The Nascent Entrepreneurship Hub: Goals, Entrepreneurial Self-Efficacy and Start-Up Outcomes." *Small Business Economics* 39 (3): 685–701. https://doi.org/10.1007/s11187-011-9355-2.

Higgins, M. C. 2005. *Career Imprints: Creating Leaders Across an Industry*. San Francisco, USA: Wiley.

Hockerts, K. 2018. "The Effect of Experiential Social Entrepreneurship Education on Intention Formation in Students." *Journal of Social Entrepreneurship* 9 (3): 234–256. https://doi.org/10.1080/19420676.2018.1498377.

Honig, B., and T. Karlsson. 2004. "Institutional Forces and the Written Business Plan." *Journal of Management* 30 (1): 29–48. https://doi.org/10.1016/j.jm.2002.11.002.

Huber, R. L., R. Sloof, and M. Van Praag. 2014. "The Effect of Early Entrepreneurship Education: Evidence from a Randomized Field Experiment." *European Economic Review* 72:76–97. https://doi.org/10.1016/j.euroecorev.2014.09.002

Ibarra, H. 1999. "Provisional Selves: Experimenting with Image and Identity in Professional Adaptation." *Administrative Science Quarterly* 44 (4): 764–791. https://doi.org/10.2307/2667055.

Jay, J. 2013. "Navigating Paradox as a Mechanism of Change and Innovation in Hybrid Organizations." *Academy of Management Journal* 56 (1): 137–159. https://doi.org/10.5465/amj.2010.0772.

Kibler, E., T. Kautonen, and M. Fink. 2014. "Regional Social Legitimacy of Entrepreneurship: Implications for Entrepreneurial Intention and Start-Up Behavior." *Regional Studies* 48 (6): 995–1015. https://doi.org/10.1080/00343404.2013.851373.

Kickul, J., and T. S. Lyons. 2020. *Understanding Social Entrepreneurship: The Relentless Pursuit of Mission in an Ever-Changing World*. 3rd ed. New York: Routledge.

Kish-Gephart, J. J., and J. T. Campbell. 2015. "You don't Forget Your Roots: The Influence of CEO Social Class Background on Strategic Risk-Taking." *Academy of Management Journal* 58 (6): 1614–1636. https://doi.org/10.5465/amj.2013.1204.

Knowles, M. S., E. F. I. Holton, and R. A. Swanson 2015. *The Adult Learner: The Definitive Classic in Adult Education and Human*, 265. Florence: Taylor and Francis.

Koe Hwee Nga, J., and G. Shamuganathan. 2010. "The Influence of Personality Traits and Demographic Factors on Social Entrepreneurship Startup Intentions." *Journal of Business Ethics* 95 (2): 259–282. https://doi.org/10.1007/s10551-009-0358-8.

Kolb, B., and R. Gibb. 2011. "Brain Plasticity and Behaviour in the Developing Brain." *Journal of the Canadian Academy of Child and Adolescent Psychiatry* 20 (4): 265–276.

Kolvereid, L., and Ø. Moen. 1997. "Entrepreneurship Among Business Graduates: Does a Major in Entrepreneurship Make a Difference?" *Journal of European Industrial Training* 21 (4): 154–160. https://doi.org/10.1108/03090599710171404.

Koukpaki, A. S. F., and K. Adams. 2020. "Enhancing Professional Growth and the Learning and Development Function Through Reflective Practices: An Autoethnographic Narrative Approach." *European Journal of Training and Development* 44 (8–9): 805–827.

Kulikova, M. A., A. S. Molchan, N. V. Polujanova, N. L. Balamirzoev, and G. F. Galieva. 2022. "Smart Social Infrastructure as the Basis for the Long-Term Development of Social Entrepreneurship: Problems and Prospects in Russia." In *Business 4.0 as a Subject of the Digital Economy*, edited by Popkova E. G, 9–16. Cham: Springer International Publishing.

Kuratko, D. F. 2005. "The Emergence of Entrepreneurship Education: Development, Trends, and Challenges." *Entrepreneurship Theory and Practice* 29 (5): 577–597. https://doi.org/10.1111/j.1540-6520.2005.00099.x.

Lang, F. R., and L. L. Carstensen. 2002. "Time Counts: Future Time Perspective, Goals, and Social Relationships." *Psychology and Aging* 17 (1): 125–139. https://doi.org/10.1037/0882-7974.17.1.125.

Lövdén, M., L. Fratiglioni, M. M. Glymour, U. Lindenberger, and E. M. Tucker-Drob. 2020. "Education and Cognitive Functioning Across the Life Span." *Psychological Science in the Public Interest* 21 (1): 6–41. https://doi.org/10.1177/1529100620920576.

Malmendier, U., G. Tate, and J. Yan. 2011. "Overconfidence and Early-Life Experiences: The Effect of Managerial Traits on Corporate Financial Policies." *Journal of Finance* 66 (5): 1687–1733. https://doi.org/10.1111/j.1540-6261.2011.01685.x.

Marquis, C., and A. Tilcsik. 2013. "Imprinting: Toward a Multilevel Theory." *Academy of Management Annals* 7 (1): 195–245. https://doi.org/10.5465/19416520.2013.766076.

Martin, B. C., J. J. McNally, and M. J. Kay. 2013. "Examining the Formation of Human Capital in Entrepreneurship: A Meta-Analysis of Entrepreneurship Education Outcomes." *Journal of Business Venturing* 28 (2): 211–224. https://doi.org/10.1016/j.jbusvent.2012.03.002.

Méndez-Picazo, M. T., M. A. Galindo-Martín, and M. S. Castaño-Martínez. 2021. "Effects of Sociocountry-Level Cutural and Economic Factors on Social Entrepreneurship and Sustainable Development." *Journal of Innovation & Knowledge* 6 (2): 69–77. https://doi.org/10.1016/j.jik.2020.06.001.

Mentoor, E. R., and C. Friedrich. 2007. "Is Entrepreneurial Education at South African Universities Successful? An Empirical Example." *Industry and Higher Education* 21 (3): 221–232. https://doi.org/10.5367/000000007781236862.

Nabi, G., F. Liñán, A. Fayolle, N. Krueger, and A. Walmsley. 2017. "The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda." *Academy of Management Learning and Education* 16 (2): 277–299. https://doi.org/10.5465/amle.2015.0026.

Nana, R., K. Adams, and R. Attah-Boakye. 2024. "Stakeholder Management Challenges and the Complexities of Promoting Sustainable Entrepreneurship in Africa." In *Stakeholder Management and Entrepreneurship in Africa*, edited by Adomako S. Gyensare M. A. Ahsan M., 170–182. Routledge.

Neck, H. M., and P. G. Greene. 2011. "Entrepreneurship Education: Known Worlds and New Frontiers." *Journal of Small Business Management* 49 (1): 55–70. https://doi.org/10.1111/j.1540-627X.2010.00314.x.

Nelson, C. A., III, C. H. Zeanah, and N. A. Fox. 2019. "How Early Experience Shapes Human Development: The Case of Psychosocial Deprivation." *Neural Plasticity* 2019, Article 1–12. https://doi.org/10.1155/2019/1676285.

O'Connor, A. 2013. "A Conceptual Framework for Entrepreneurship Education Policy: Meeting Government and Economic Purposes." *Journal of Business Venturing* 28 (4): 546–563. https://doi.org/10.1016/j.jbusvent.2012.07.003.

Ode, E., R. K. Nana, K. Adams, and D. N. Ikyanyon. 2026. "Social Impact and Innovation in Digital Entrepreneurship." In *Technology Entrepreneurship in Africa*, edited by Adomako S., Donbesuur F., Frimpong K.,Mkansi M., Zahoor N., and Nyongesa S., 9–25. Routledge. https://doi.org/10.4324/9781003532422-3

Oosterbeek, H., M. Van Praag, and A. Ysselstein. 2010. "The Impact of Entrepreneurship Education on Entrepreneurship Skills and Motivation." *European Economic Review* 54 (3): 442–454. https://doi.org/10.1016/j.euroecorev.2009.08.002.

Pache, A. C., and I. Chowdhury. 2012. "Social Entrepreneurs as Institutionally Embedded Entrepreneurs: Toward a New Model of Social Entrepreneurship Education." *Academy of Management Learning and Education* 11 (3): 494–510. https://doi.org/10.5465/amle.2011.0019.

Pache, A.-C., and F. Santos. 2013. "Inside the Hybrid Organization: Selective Coupling as a Response to Competing Institutional Logics." *Academy of Management Journal* 56 (4): 972–1001. https://doi.org/10.5465/amj.2011.0405.

Patzelt, H., and D. A. Shepherd. 2024. "A Fatigue Model of Social Venturing." *Small Business Economics* 63 (3): 1065–1088. https://doi.org/10.1007/s11187-023-00853-4.

Peterman, N. E., and J. Kennedy. 2003. "Enterprise Education: Influencing students' Perceptions of Entrepreneurship." *Entrepreneurship Theory and Practice* 28 (2): 129–144. https://doi.org/10.1046/j.1540-6520.2003.00035.x.

Petriglieri, G., and J. L. Petriglieri. 2010. "Identity Workspaces: The Case of Business Schools." *Academy of Management Learning and Education* 9 (1): 44–60. https://doi.org/10.5465/AMLE.2010.48661190.

Petrovich, S. B., and J. L. Gewirtz. 2013. "Imprinting and Attachment: Proximate and Ultimate Considerations." In *Intersections with Attachment*, edited by Gewirtz J.L, and Kurtines W. M, 69–93. Psychology Press.

Piaget, J. 1976. "Piaget's Theory." In *Piaget and His School*, edited by B. Inhelder and H. H. Chipman, 11–23. Berlin and Heidelberg: Springer.

Pounder, P. A. 2021. "Social Entrepreneurship and Country-Level Cutural Contextualization: A Review." *International Journal of Development Issues* 20 (3): 344–357. https://doi.org/10.1108/IJDI-02-2021-0029.

Reynolds, P. D., N. Bosma, E. Autio, S. Hunt, N. De Bono, I. Servais, P. Lopez-Garcia, and N. Chin. 2005. "Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003." *Small Business Economics* 24 (3): 205–231. https://doi.org/10.1007/s11187-005-1980-1.

Rideout, E. C., and D. O. Gray. 2013. "Does Entrepreneurship Education Really Work? A Review and Methodological Critique of the Empirical Literature on the Effects of University-Based Entrepreneurship Education." *Journal of Small Business Management* 51 (3): 329–351. https://doi.org/10.1111/jsbm.12021.

Rosca, E., N. Agarwal, and A. Brem. 2020. "Women Entrepreneurs as Agents of Change: A Comparative Analysis of Social Entrepreneurship Processes in Emerging Markets." *Technological Forecasting and Social Change* 157:120067. https://doi.org/10.1016/j.techfore.2020.120067.

Rosendahl Huber, L., R. Sloof, and M. van Praag. 2014. "The Effect of Early Entrepreneurship Education: Evidence from a Field Experiment." *European Economic Review* 72:76–97. https://doi.org/10.1016/j.euroecorev.2014.09.002.

Ryan, R. M., and E. L. Deci. 2000. "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being." *The American Psychologist* 55 (1): 68–78. https://doi.org/10.1037/0003-066X.55.1.68 .

Saebi, T., N. J. Foss, and S. Linder. 2019. "Social Entrepreneurship Research: Past Achievements and Future Promises." *Journal of Management* 45 (1): 70–95. https://doi.org/10.1177/0149206318793196.

Santos, F. 2012. "A Positive Theory of Social Entrepreneurship." *Journal of Business Ethics* 111 (3): 335–351. https://doi.org/10.1007/s10551-012-1413-4.

Saracho, O. N. 2023. "Theories of Child Development and Their Impact on Early Childhood Education and Care." *Early Childhood Education Journal* 51 (1): 15–30. https://doi.org/10.1007/s10643-021-01271-5.

Sarıkaya, M., and E. Coşkun. 2015. "A New Approach in Preschool Education: Social Entrepreneurship Education." *Procedia-Social and Behavioral Sciences* 195:888–894. https://doi.org/10.1016/j.sbspro.2015.06.368.

Serpente, G., D. Bolzani, and R. Grimaldi. 2025. "Entrepreneurial Support Organizations as Providers of Entrepreneurial Education and Training." *The Journal of Technology Transfer*. Advance online publication.50 (5): 2412–2442. https://doi.org/10.1007/s10961-024-10177-4.

Short, J. C., T. W. Moss, and G. T. Lumpkin. 2009. "Research in Social Entrepreneurship: Past Contributions and Future Opportunities." *Strategic Entrepreneurship Journal* 3 (2): 161–194. https://doi.org/10.1002/sej.69.

Silesky-Gonzalez, E., Y. Lezcano-Calderon, and A. Mora-Cruz. 2025. "Effects of Education for Entrepreneurship and Entrepreneurial Intention in University Students." *International Entrepreneurship and Management Journal* 21 (1): 26. https://doi.org/10.1007/s11365-024-01039-4.

Sluckin, A. 2017. *Growing Up in the Playground: The Social Development of Children*. London: Routledge.

Smith, W. K., M. Gonin, and M. L. Besharov. 2013. "Managing Social-Business Tensions: A Review and Research Agenda for Social Enterprise." *Business Ethics Quarterly* 23 (3): 407–442. https://doi.org/10.5840/beq201323327.

Smith, W. K., and M. W. Lewis. 2011. "Toward a Theory of Paradox: A Dynamic Equilibrium Model of Organizing." *Academy of Management Review* 36 (2): 381–403. https://doi.org/10.5465/amr.2009.0223.

Souitaris, V., S. Zerbinati, and A. Al-Laham. 2007. "Do Entrepreneurship Programmes Raise Entrepreneurial Intention of Science and Engineering Students? The Effect of Learning, Inspiration, and Resources." *Journal of Business Venturing* 22 (4): 566–591. https://doi.org/10.1016/j.jbusvent.2006.05.002.

Stephan, U., L. M. Uhlaner, and C. Stride. 2015. "Institutions and Social Entrepreneurship: The Role of Institutional Voids, Institutional Support, and Institutional Configurations." *Journal of International Business Studies* 46 (3): 308–331. https://doi.org/10.1057/jibs.2014.38.

Stuetzer, M., D. B. Audretsch, M. Obschonka, S. D. Gosling, P. J. Rentfrow, and J. Potter. 2017. "Entrepreneurship Culture, Knowledge Spillovers, and the Growth of Regions." *Regional Studies* 52 (5): 608–618.

Sud, M., C. V. VanSandt, and A. M. Baugous. 2009. "Social Entrepreneurship: The Role of Institutions." *Journal of Business Ethics* 85 (S1): 201–216. https://doi.org/10.1007/s10551-008-9939-1.

Sun, J., J. Shi, and J. Zhang. 2023. "From Entrepreneurship Education to Entrepreneurial Intention: Mindset, Motivation, and Prior Exposure." *Frontiers in Psychology* 14:954118. https://doi.org/10.3389/fpsyg.2023.954118.

Swidler, A. 1986. "Culture in Action: Symbols and Strategies." *American Sociological Review* 51 (2): 273–286. https://doi.org/10.2307/2095521.

Thornton, P. H., W. Ocasio, and M. Lounsbury. 2012. *The Institutional Logics Perspective: A New Approach to Culture, Structure, and Process*. Oxford, UK: Oxford University Press.

Tilcsik, A. 2014. "Imprint–Environment Fit and Performance: How Organizational Munificence at the Time of Hire Affects Subsequent Job Performance." *Administrative Science Quarterly* 59 (4): 639–668. https://doi.org/10.1177/0001839214549042.

Tymofiyeva, O., and R. Gaschler. 2021. "Training-Induced Neural Plasticity in Youth: A Systematic Review of Structural and Functional MRI Studies." *Frontiers in Human Neuroscience* 14:497245. https://doi.org/10.3389/fnhum.2020.497245.

Ullah, S., K. Adams, D. Adams, and R. Attah-Boakye. 2021. "Multinational Corporations and Human Rights Violations in Emerging Economies: Does Commitment to Social and Environmental Responsibility Matter?" *Journal of Environmental Management* 280:111689. https://doi.org/10.1016/j.jenvman.2020.111689.

Urbano, D., E. Ferri, M. Peris-Ortiz, and S. Aparicio. 2017. "Social Entrepreneurship and Institutional Factors: A Literature Review." In *Entrepreneurial Universities: Exploring the Academic and Innovative Dimensions*, edited by M. Peris-Ortiz, J. A. Alonso-Galicia, J. M. Rueda-Armengot, D. Urbano, and E. Ribeiro-Soriano, 9–29. Cham, Switzerland: Springer: Springer.

van Rijn, M., J. Raab, F. Roosma, and P. Achterberg. 2024. "To Prove and Improve: An Empirical Study on Why Social Entrepreneurs Measure Their Social Impact." *Journal of Social Entrepreneurship* 15 (2): 494–516. https://doi.org/10.1080/19420676.2021.1975797.

Vázquez-Parra, J. C., A. García-González, and M. S. Ramírez-Montoya. 2022. "Ethical Education and Its Impact on the Perceived Development of Social Entrepreneurship Competency." *Higher Education, Skills and Work-Based Learning* 12 (2): 369–383. https://doi.org/10.1108/HESWBL-01-2021-0012.

Von Graevenitz, G., D. Harhof, and R. Weber. 2010. "The Effects of Entrepreneurship Education." *Journal of Economic Behavior and Organization* 76 (1): 90–112. https://doi.org/10.1016/j.jebo.2010.02.015.

Wei, X., X. Liu, and J. Sha. 2019. "How Does the Entrepreneurship Education Influence the Students' Innovation? Testing on the Multiple Mediation Model." *Frontiers in Psychology* 10:1557. https://doi.org/10.3389/fpsyg.2019.01557.

Wennberg, K., S. Pathak, and E. Autio. 2013. "How Culture Moulds the Effects of Self-Efficacy and Fear of Failure on Entrepreneurship." *Entrepreneurship and Regional Development* 25 (9–10): 756–780. https://doi.org/10.1080/08985626.2013.862975.

Williamson, O. E. 2000. "The New Institutional Economics: Taking Stock, Looking Ahead." *Journal of Economic Literature* 38 (3): 595–613. https://doi.org/10.1257/jel.38.3.595.

Wooldridge, J. M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. Cambridge, MA: MIT Press.

Yu, H., R. Attah-Boakye, Y. Zhang, K. Adams, and D. Owusu-Yirenkyi. 2025. "Home–Country Technological Legitimacy in Crowdfunding: The Moderating Role of Positive Psychological Capital Language." *Technovation* 141:103185. https://doi.org/10.1016/j.technovation.2025.103185.

Zhou, Q., H. Yu, M. Chen, M. Snell, and K. Adams. 2025. "Managing Technological Innovation for Social Good: A Systematic Literature Review." *Strategic Change*. https://doi.org/10.1002/jsc.2651.

Zhou, Z., Y. Qu, and X. Li. 2022. "Parental Collectivism Goals and Chinese adolescents' Prosocial Behaviors: The Mediating Role of Authoritative Parenting." *Journal of Youth & Adolescence* 51 (4): 766–779. https://doi.org/10.1007/s10964-022-01579-4.