Conceptualising the transformational power of entrepreneurship from an entrepreneurial ecosystems perspective focusing on environmentally and socially inclusive economic growth

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Abstract: This paper focuses on the philosophy of transformational entrepreneurship and explores what role entrepreneurial ecosystems fulfil within that to stimulate environmentally and socially inclusive growth. It first examines the past and current contributions in the entrepreneurship literature. Then, it considers the current debate on the transformative power of entrepreneurship and how it can be best utilised for creation of sustainable socio-economic growth via diverse forms of entrepreneurship and interdependencies between entrepreneurial actions and functions at different income levels. From this basis, this research contributes to the recent literature on transformational effects of entrepreneurship by providing novel insights into the role entrepreneurial ecosystems fulfil in transforming societies.

Keywords: entrepreneurship; transformation; transformational entrepreneurship; entrepreneurial ecosystems; low-income economies; middle-income economies.

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1 Introduction

The field of entrepreneurship is very rich. Over several decades, scholars have contributed to this field studying entrepreneurship at different levels, i.e., individual, firm, region and country. Prominent theories have been proposed and widely accepted which pertain to the different levels of entrepreneurship. Complementary to theoretical contributions a vast number of entrepreneurship types have emerged linking the entrepreneurial experimentation activity to bare necessities or grasping and exploitation of opportunities that exist due to changes in markets, technologies and institutional regulations.

Socio-economic growth is the ultimate goal of entrepreneurial activity. Within this regard, extant research has shown that entrepreneurship and innovation drive socio-economic growth when interconnected actors work together which in turn is beneficial for its effects on employment creation and well-being of the society (COM, 2012; Cooney, 2012; Stam, 2015; Bouncken and Kraus, 2021; Wurth et al., 2021). However, the global environment faces various challenges such as COVID-19, climate change and growing inequality among countries and regions. In order to address these challenges a plethora of initiatives supporting entrepreneurship have been implemented to support entrepreneurs during an environment of challenges exists. Yet, while entrepreneurship may be socially productive, it struggles to address major challenges (Sautet, 2013; Maas and Jones, 2015; Ratten and Jones, 2018). Consequently, a new approach is needed supporting entrepreneurship, for example, avoiding policies which focus solely on stimulating economic growth without considering the environmental and societal consequences risk resulting in inefficient use of valuable and scarce natural resources, environmental deterioration and deepening inequality. Therefore, pursuing purely economic growth at the expense of environmental and societal degradation is not a sustainable solution.

Given the above discussion, we argue that current practices stimulating entrepreneurship should be revisited. According to Maas and Jones (2019) such an approach should emphasise the need for holistic thinking and in essence moves the concept of the entrepreneur (or the entrepreneurial firm) from the individual to the context in which the individual is situated, that is to society more generally. This approach does not argue against the existence of locally focused entrepreneurial activities, instead suggesting that the total system of support should be reconsidered so that activities can generate favourable results at the local level and in turn go beyond local levels. In this regard Miller and Collier (2010, p.85) argue that entrepreneurship "transcends economic terms and emphasizes the centrality and value of people, their vocations, and the many levels of relationality involved in entrepreneurship, in addition to the technical aspects of the business." Marmer (2012) supports the view of Miller and Collier (2010) that entrepreneurship is more than economic terms and therefore argues that a combination of technology (i.e., economic terms) and social entrepreneurship (i.e., community involvement) is desired to address the current stalemate in terms of global socio-economic growth.

Based on these arguments, this paper focuses on the transformative power of entrepreneurship and how it can be best utilised for creation of sustainable and inclusive socio-economic growth accounting for economic, social, technological and

environmental impact (Audretsch et al., 2019). From this basis, this research contributes to recent literature on entrepreneurship by providing novel insights into the role entrepreneurial ecosystems (herein after EE) fulfil in transforming societies. Finally, we argue that the cross-section of entrepreneurship (e.g., innovation, green and social entrepreneurship) has potential to generate transformative results and possibilities for leapfrogging towards inclusive and sustainable economic growth by job creation and increasing rates of small business ownership whilst protecting the environment and the communities. When combined with a sustainability perspective, entrepreneurship can bring out transformative results. Therefore, the paper contributes to the extant literature through integrating conceptual approaches to systemic entrepreneurship (i.e., mainly entrepreneurial ecosystems concept) with the concept of transformative role of entrepreneurship as inspired by recent evidence from the transformative role of innovation (Schot and Steinmueller, 2018).

However, such transformation is not a straightforward task. It needs out-of-box mind-sets at individual level, new business models and path-breaking approaches at firm level which needs to be initiated by entrepreneurial behaviour and supported by the institutional environment. Furthermore, such transformation also needs a goal for socially inclusive and environmentally protective economic growth, rather than purely profit-driven economic growth confined to measurements by GDP growth or increases in GDP per capita. This is ever more important when some traditional jobs are being and will be replaced by newly emerging jobs. Encouraging economic growth and development is a core aim of public policy. However, the question 'who gains from growth?' is being met with increasing concern. The economic and social outcomes of growth and development relate to both the type of growth which is generated and the mechanisms connecting this to the experiences of citizens and communities. In that sense, a transformative approach to entrepreneurship considers differences in income levels among the countries and regions taking into account high-income, middle-income and low-income settings where different styles of entrepreneurial activity may result in transformative outcomes.

This paper is structured as follows. It first discusses the past and present contributions of entrepreneurship theory. This will follow with a discussion on the relatedness of entrepreneurship to inclusive socio-economic growth. From that basis, the discussions will focus on conceptualising the transformative effects of entrepreneurship and the role EE can play in that. Finally, a depth discussion will follow which will end of in a conclusion and a reflection on the way forwards.

2 Overview of literature

2.1 Entrepreneurship theories: past and recent contributions

Entrepreneurship theories atypically stress three levels: the individual, i.e., the entrepreneur; the firm, i.e., the company with entrepreneurial philosophy, and the economy, i.e., the entrepreneurial capacity or propensity of entrepreneurial activity of a country. Table 1 provides a summary of these approaches.

Table 1 Selected entrepreneurship theories and frameworks

Level/domain of entrepreneurship	*Conceptual framework*	*Theoretical context*
The individual entrepreneur	Individual – opportunity (I-O) nexus: opportunity creation – discovery – identification – exploration – exploitation processes	Opportunity-based entrepreneurship theory focuses on individual characteristics based on market related (Kirzner, 1985) and technology related disequilibrium (Schumpeter, 1934). The positivist and discovery approach argues opportunities exist independent of entrepreneurs preceding the identification, exploration and exploitation processes take place (Shane, 2000, 2003; Gaglio and Katz, 2001; Venkataraman, 2003). The constructivist and creation approach argues opportunities do not exist independent of entrepreneurs, they are created by entrepreneurs and are bound by social, political, technological and regulatory environment (Alvarez and Barney, 2007).
The start-up		
Entrepreneurially oriented established firm	*Entrepreneurial orientation *Firm-opportunity (F-O) nexus: opportunity identification – exploration – exploitation processes	Opportunity-based entrepreneurship theory focuses on firm-level characteristics by: • characteristics that define entrepreneurial orientation (Miller, 1983; Covin and Miles, 1999; Dess and Lumpkin, 2005) • opportunity exploration and exploitation at firm level (Choi and Shepherd, 2004) • proposing an amalgamated approach to creation and discovery approaches to entrepreneurship and opportunity creation, identification and exploitation at firm level (Sarasvathy et al., 2003).
Systemic approaches to entrepreneurship		
Regional entrepreneurial propensity	Smart specialisation strategies with entrepreneurial discovery process	A focus on entrepreneurial discovery process and R&D activities that are in the core of generating competence in selected research areas where regions can be competitive at (Foray et al., 2011).

Table 1 Selected entrepreneurship theories and frameworks (continued)

Level/domain of entrepreneurship	*Conceptual framework*	*Theoretical context*
Systemic approaches to entrepreneurship		
National entrepreneurial propensity	*National system of entrepreneurship (NSE)	A focus on how individual level entrepreneurship can be facilitated by contextual institutional environment (Acs et al., 2014).
	*Entrepreneurial propensity of innovation systems (EPIS)	A focus on how knowledge-based entrepreneurship at firm level can be facilitated by the complementarities among the market, technology and institutional opportunities (Radosevic and Yoruk, 2013)
Place-based (industry/local/city/ regional/national/global) entrepreneurial propensity with aggregate welfare effects as the final outcome	Entrepreneurial ecosystems	An ecosystem approach to entrepreneurship with growth-oriented innovative or productive start-ups/new ventures in its core which create entrepreneurial opportunities with the end result of increasing employment and wider welfare effects on the society (Isenberg, 2011; Mason and Brown, 2014; Stam, 2015, 2017; Wurth et al., 2021).

The individual-opportunity (I-O) nexus sees the entrepreneur as the core of the entrepreneurial activity. Two streams of philosophical approaches have emerged in opportunity-based entrepreneurship theory. The positivist and discovery approach to entrepreneurship argues that the entrepreneurial opportunities already exist in the market, technological and institutional domains. Therefore, all that remains for the entrepreneur is to identify, explore and exploit these (Shane, 2000, 2003; Gaglio and Katz, 2001; Venkataraman, 2003). On the other hand, the constructivist and creation approach argues that entrepreneurial opportunities can be created by the entrepreneurs albeit they are shaped by the external environment of social, political, technological and regulatory frameworks (Alvarez and Barney, 2007). This stream of entrepreneurship literature has come a long way by studying the role of innovation (Wiklund and Shepherd, 2003; Gregoire and Shepherd, 2012), finance (Ayyagari et al., 2017; Korosteleva and Mickiewicz, 2011), regulations and institutions (Sine and David, 2010; York and Venkataraman, 2010; Estrin et al., 2013) on individual entrepreneurship. Recent work focuses on exploring the role of entrepreneurs' behavioural features (Kautonen et al., 2013; Jones et al., 2018; Emami et al., 2020). Most of the time it is unclear whether an entrepreneur is a one-person firm or an individual with entrepreneurial aspirations such as the entrepreneurial activity as covered in Global Entrepreneurship Monitor (GEM). Given these criticisms, Foss and Grandori (2020) argue that there is need for theory of the firm and theory of the entrepreneurship to come together so that firm level entrepreneurship studies can advance.

At the firm level, start-ups as well as entrepreneurially oriented incumbents are largely studied within the opportunity-based entrepreneurship theories. Miller (1983), Covin and Miles (1999) and Dess and Lumpkin (2005) have established the

entrepreneurial orientation concept for studying entrepreneurial activity in already established firms. Choi and Shepherd (2004) pursue the propositions of positivist and discovery approach to opportunity exploitation by implementing the theory in established firms. Sarasvathy et al. (2003) propose an integration of discovery and creation approaches in studying creation, identification and exploitation of entrepreneurial opportunities due to their context-dependent and overlapping characteristics over the lifetime of an enterprise. It is a conceptually sound and appealing framework, but empirical testing of this approach is not common.

Influenced implicitly by the institutional theory, the newly developed conceptual approaches of smart specialisation strategy (S3) at regional level and national system of entrepreneurship (NSE) and entrepreneurial propensity of innovation systems (EPIS) at country levels provide new insights into studying entrepreneurial activity (Foray et al., 2011; Acs et al., 2014; Radosevic and Yoruk, 2013). However, these approaches seem to be selective in including aspects of I-O and F-O nexus, for instance the discovery process but not the exploration and exploitation process or not at all connected to the previously developed entrepreneurship theories. Among others, S3 involves entrepreneurial discovery process, one of its core elements in the framework. S3 is a policy process that leads to the careful selection and prioritisation of strategic areas in which entrepreneurs can play key role by discovering the opportunities particularly related to information in markets, technologies and institutional domains (Foray et al., 2011; Foray, 2017). Governmental intervention in directing stakeholders to discover opportunities and invest in research and development activities is key factor in S3 process (Foray, 2015, 2018). The discovery process is related to identification of strategic research areas at regional/ national levels which generates social value for the general public (Foray, 2017). Although S3 assumes that the discovery process naturally leads to exploratory and exploitation processes and does not provide explanations on how information related opportunities can be explored and exploited, S3 is one promising framework which integrates entrepreneurship with industrial strategy in a way that can empirically be tested at regional and national levels. The unit of entrepreneurship in S3 is not explicit.

Work on national systems of entrepreneurship (NSE) utilises an analytical framework at country level based on GEM data which places individual level entrepreneurship in its core (Acs et al., 2014). NSE examine entrepreneurship and the associated contextual and institutional environment relationship from an I-O perspective. Another analytical framework on EPIS places firm level knowledge-based entrepreneurship in the core of an innovation system and investigates the interdependent roles of markets, technologies and the institutional setting on generation of new ventures. Lastly, in its infancy there is the concept of EE. Silicon Valley is a first and widely acknowledged example of EE concept which is studied and typified by Saxenian (1994) in her influential research on the establishment and remarkable success of the Silicon Valley in the context of start-up ecosystem. It gained impetus through the OECD's Local Employment and Economic Development (LEED) Programme which was established in 2004. In 2010, Daniel Isenberg founded Babson Entrepreneurship Ecosystem Platform which pioneered the idea of entrepreneurial ecosystems based on heterogeneity of places in terms of resources, infrastructure and institutional context (Isenberg, 2010). In 2013, LEED conducted a workshop on EE.[1] Following these efforts, the concept was taken on by a series of contributions from scholars in the context of new and especially growth-oriented firms with a vision to create jobs in the local and national contexts. In this sense, EE framework aligns well with the inclusive growth agenda. Systemic key players such as

investors, established firms, serial entrepreneurs, knowledge institutions, service providers and bridging institutions are acknowledged as well as the complementary roles of private and public sector intervention to fill the gaps (Mason and Brown, 2014). Stam (2015) draws attention to the level of analysis the approach will be embedded in as well as its effects on aggregate welfare effects as the ultimate outcome via different forms of entrepreneurship.

In summary, the different approaches to entrepreneurship at different levels are complementary to each other. They each provide suitable frameworks to examine entrepreneurship in different contexts and forms and also at different levels of economic development. Among all, the EE approach explicitly considers employment and general welfare effects of entrepreneurship activities as an important element of the concept, whereas in other approaches this is implicitly assumed to take place as a natural result from entrepreneurial activity. For that reason, the EE approach resonates well with calls for inclusive growth. However, as Stam (2015, p.1764) puts forward 'the question remains: how do entrepreneurial ecosystems perform with the different forms of entrepreneurship (as output) and in terms of aggregate welfare effects (as final outcome)?' Before introducing our argument on how entrepreneurship activity can transform societies at different levels of incomes, we first briefly discuss different forms of entrepreneurship that emerged in the literature.

2.2 Forms of entrepreneurship and income levels

A widely agreed classification for entrepreneurship styles is the GEM definition of opportunity vs. necessity entrepreneurship (Reynolds et al., 2002). Opportunity entrepreneurship is driven by business opportunities that exist and recognised or created by the entrepreneurs, whereas necessity entrepreneurship is driven by needs and subsistence simply because people cannot find other suitable work. As environmental and societal challenges become more visible and influencing people's lives, GEM 2019 identified the purpose-driven entrepreneurship with motivations for entrepreneurs to start up a new business so as to make a difference in the world whether socially or environmentally (Bosma et al., 2020). This classification provides useful background for better understanding of many forms of entrepreneurial activity discussed in the entrepreneurship literature.

Business related entrepreneurial opportunities arise due to changes/distortions/ asymmetries in the markets and changes/advances in technologies and the institutional environment shaping or regulating these domains (Eckhardt and Shane, 2003; Yoruk and Jones, 2020). Opportunity entrepreneurship in that sense can take two forms:

1 innovation-driven opportunity entrepreneurship

2 improvement-driven opportunity entrepreneurship (Reynolds et al., 1999; Bosma et al., 2020).

Whilst innovation-driven opportunity entrepreneurship is based on new ideas in a market; improvement-driven opportunity entrepreneurship is a result of motivation to be independent or increase income (Reynolds et al., 1999). Especially changes in technological environment resulting in innovation drive entrepreneurship forms such as innovative entrepreneurship (Baumol, 2010), technology entrepreneurship (Kenney and von Burg, 1999; Garud and Karnoe, 2003), knowledge-intensive entrepreneurship

(Malerba and McKelvey, 2020), productive entrepreneurship (Stam, 2015), high-impact entrepreneurship (Acs, 2008), digital entrepreneurship (Battisti and Brem, 2020). These technology and knowledge-based entrepreneurship styles with technological innovation in their core show large potential for high growth and scaling up in short periods of time by generating high levels of new economic value which in turn is reflected on job creation. Due to its high level of technological innovation and knowledge content and the path dependent nature of technological activity, these kinds of entrepreneurship are mostly observed in high-income and middle-income industrial economies. They do have transformative effects on society via technologically new economic value and wealth creation. Similarly, having high rates of improvement-driven opportunity entrepreneurship can be predictive of the intention to grow a nascent or new business and is likely to affect a country's overall business aspirations towards growth (Bosma et al., 2020).[2]

Other new forms of entrepreneurship that are driven by opportunities but located in the socially and environmentally related aspects of markets and technologies and influenced by missions in the mind-set of their actors are social entrepreneurship (Dees, 1998; Weerawardena and Mort, 2006; Gali et al., 2020), sustainable entrepreneurship and green entrepreneurship (Demirel et al., 2019) and humane entrepreneurship (Parente et al., 2018). They contribute towards creation of social and environmental value whilst also creating economic value. Entrepreneurs operating in these fields are mission or purpose-driven by social and environmental causes other than profit-making. Although social entrepreneurs are non-profit seeking actors, green entrepreneurship may need high levels of capital and are profit-oriented. These forms of entrepreneurship have transformative effects on society via social and environmental improvements and value. Finally, international entrepreneurship examines cross border trade related dimensions of entrepreneurial activity not overlooking the social, cultural, political and economic surroundings (Acs et al., 2003; Jafari-Sadeghi et al., 2019; Haddoud et al., 2019).

Necessity entrepreneurship is assumed to arise because people would have no other option for a work to sustain their livelihoods. One dominant form of necessity entrepreneurship is subsistence entrepreneurship which is usually not a choice among alternatives but a requirement (Viswanathan et al., 2010). It is associated closely with the 'bottom-of-the-pyramid' (Prahalad, 2005) or 'subsistence marketplaces' (Viswanathan et al., 2005). Although this kind of entrepreneurship is attributed to the world's poorest parts and low-income economies, poorest citizens of the world exist in pockets of poverty in any country in the world due to increasing between and within country inequality. The entrepreneurship literature is divided about whether subsistence entrepreneurship can have transformative effects or not.

There are differences between low- and lower middle-income economies and high-income economies in terms of opportunity vs. necessity entrepreneurship. GEM 2019/2020 report (for instance, see Figure 4.4 in the report) presents data for the reason 'motivation to earn a living because jobs are scarce' to engage in entrepreneurship activity across selected countries (Bosma et al., 2020). Using this data, we calculated that almost 81% of TEA (somewhat/strongly agree) in low- and lower middle-income countries is based on this reason, whereas this reason accounts for around 41% of TEA in upper high-income countries. Although the 81% figure cannot be fully associated with subsistence entrepreneurship it is highly associated with forms of necessity entrepreneurship. Additionally, GEM database provides data for motivational index which is measured by percentage of those involved in TEA that are improvement-driven

opportunity-motivated, divided by the percentage of TEA that is necessity-motivated. We calculated the average motivational index for low- and lower middle-income economies as well as high income economies for 2010–2018 period. High-income economies have an average motivational index of 3.73, whilst for low- and lower middle-income economies this figure is 1.5. This also suggests the prevalence of necessity entrepreneurship in low- and lower middle-income economies, but there is scope for improvement-driven opportunity entrepreneurship to breed socio-economic growth.[3]

3 Conceptualisation of transformative effects of entrepreneurship

In this section, we discuss what we mean by 'transformational entrepreneurship', how transformation can happen, where transformation should happen, the outcome from transformation and how these are connected to different forms of entrepreneurship at different income levels.

3.1 Definitions of transformational entrepreneurship

Jones and Maas (2019) state that entrepreneurship that is transformational in nature is a relatively new concept that has emerged due to the need to achieve effective and efficient entrepreneurial behaviours that address global challenges, including unemployment, economic underperformance and societal evolution. Ratten and Jones (2018) assert that its potential for socio-economic value creation has not yet been fully explored. Extant literature provides several definitions of entrepreneurship that shows transformational properties. Miller and Collier (2010) define transformational entrepreneurship "as the creation of an innovative virtue-based organization for the purpose of shifting resources out of lower and into higher purpose activities and greater value to transcend economic terms and emphasize the centrality and value of people, their vocations, and the many levels of relationality involved in entrepreneurship, in addition to the technical aspects of the business." Newey (2017) suggests one important aim of transformational entrepreneurship is reconciling economic and social disparities in society. Jones and Maas (2019) emphasise the 'systemic' element that is necessary for operationalisation and functioning of entrepreneurship that can deliver transformative changes for socio-economic development. In the below section, we argue that transformative change that can be driven by entrepreneurial activity is embedded in different forms of entrepreneurship that operate in places with different income levels and certain aspects pertaining to these differences have to be considered when developing a framework.

3.2 Transformation in the context of opportunity and necessity entrepreneurship

While the transformations that opportunity and purpose-driven entrepreneurship can generate in societies, one must note that not all opportunity entrepreneurship forms are transformational. For instance, as a hypothetical example, any new venture which will be setup in the tourism sector in south-east England in the summer of 2021 will be based on market opportunity, since it is expected that there will be a huge influx of domestic tourists to this region. The end of the COVID-19 pandemic may mean this is not

subsequently observed in the summer of 2022. It is the innovation-driven new value creating opportunity entrepreneurship that carries transformational elements with long-lasting effects.

Fin-tech platforms such as mobile money services are likely to have a potential to promote socio-economic development by way of generating improvement-driven opportunity entrepreneurship in the developing world (Suri and William, 2016). For instance, M-Pesa is one good example of transformative financial new-to-market innovation launched by two very large monopolies in Kenya, i.e., Vodafone and Safaricom; and a popular example of fin-tech as a developmental solution. Suri and William (2016) have shown that during 2008–2014 in Kenya, M-Pesa have contributed to increases in per capita consumption which seems to be caused by increases in savings of households that had access to M-Pesa agents which in turn encouraged female labour to switch from farming activities to other business opportunities.[4] Their findings align with the improvement-driven opportunity entrepreneurship motivated by being independent and increase income as a first step of entrepreneurship with the potential for inclusive economic growth in low- and lower middle-income economies. For instance, evidence from technological catch-up of middle-income economies show that if focused on digital technologies with shorter product cycles and rapid technological change catch-up can be faster (Lee, 2013).

The issue with necessity entrepreneurship is less clear and there is not consensus in the literature whether subsistence entrepreneurship can be transformational. GEM observes that in low- and middle-income economies total early-stage entrepreneurial activity (TEA)[5] is very high compared to advanced parts of the world. This is usually attributed to necessity entrepreneurship. Based on analysis of GEM data, Acs (2006) stresses that necessity entrepreneurship does not bring about prosperity and economic development as measured by GDP per capita. Yet, in the EU, entrepreneurship and self-employment policies gained impetus as a respond to high unemployment rates coupled with limited economic growth (Baptista and Thurik, 2007). Baptista and Thurik (2007) state that in Portugal, right after accession to the EU in 1986 and during transition from managed to entrepreneurial economy, micro-businesses created for subsistence have been encouraged which resulted in decreasing unemployment. These ambiguous findings have important implications for middle-income economies which can increase the rate of opportunity entrepreneurship and scaling up of firms by implementing supportive policies, however in low-income regions/economies this option is very limited. There seems to be a lock-in situation with subsistence entrepreneurship in low-income economies, yet the economic and societal dynamics allow for its continuation. Schoar (2010) states capital constraints in low-income economies restrict growth among businesses formed by subsistence entrepreneurs. Rosa et al. (2006) contend savings are low and almost impossible to achieve in low-income economies hindering the scaling up of subsistence businesses. Schoar (2010) also states that in some low-income economies there are deliberate policies in place to constantly support subsistence entrepreneurs in selected sectors and discourage them from shifting to the next level of scaling up, for example in India up until 2010 retail sector companies with more than 20 employees were forbidden.

Other scholars argue cultural context is largely overlooked where subsistence entrepreneurs in low-income economies are found to be highly embedded in social networks, group and collective behaviour prevails in contrast to individualistic characteristics (Tellegen, 1997; Viswanathan et al., 2010; Sridharan et al., 2014). Cultural

differences in individualist vs. group/collective behaviour may explain differences in necessity vs. opportunity entrepreneurship in low-income areas. High levels of support from the immediate family and close social contacts might obstruct further aspirations and goals giving the individuals a sense of being taken care of and preventing them from taking risks and in turn hindering transformation to more productive entrepreneurship forms. For instance, Viswanathan et al. (2010) observe that the low rates of literacy and education have indeed been compensated by strong social networks. This suggests the dynamics of entrepreneurship are very different in low-income contexts compared to those of high-income. Tobias et al. (2013) and Sridharan et al. (2014) approach the matter from an enhanced personal well-being and increased quality of life perspective rather than considering how the activities of entrepreneurs in subsistence can contribute to the general economy. This is a very useful perspective, since once personal and family wellbeing is fulfilled, individuals can move to the next level of contributing in general to the economy by elevated aspirations for business growth, i.e., by shifting activities from informal to formal economy. Examples of personal wellbeing and financial security are about being able to generate a steady income and provide education for children in the family and being able to save beyond owning a house to live in. Sridharan et al. (2014) label this shift in new value creation from individual to community to economy level as transformative subsistence entrepreneurship. Tobias et al. (2013) highlight the role of 'ordinary' people that make social change through entrepreneurship sustainable. Recently, Ratten et al. (2019) call for the unique setting for subsistence entrepreneurship to be considered and revisited in the context of sustainability and social goals.

Similar to Tobias et al. (2013) we also argue that necessity entrepreneurship, i.e., subsistence entrepreneurship, is overlooked by the dominant entrepreneurship theories. Subsistence entrepreneurship is a matter of debate in a distant literature which emerged in the subsistence marketing literature, but it should be connected to the dominant entrepreneurship theories. There is need for current entrepreneurship theories and policies to successfully address SDGs. We see the emerging EE approach as a useful tool for conceptualisation and application of such perspective including necessity entrepreneurship, SDGs and transformational elements of different forms of entrepreneurship.

In their seminal contribution, Schot and Steinmueller (2018) propose a set of transformative innovation policies to facilitate both environmental and societal impact and deliver SDGs set by the UN. They call a transformative stage for innovation 'Frame 3 innovation policies' which realised as shift from innovation growth at firm or sector level to national systems level and now necessitates a transformative shift aiming at global sustainability due to most pressing challenges. The impact from actions is ever more important. To this respect, Audretsch et al. (2019) call for consideration and study of entrepreneurial activity for its impact on economic, technological and societal changes. We build on their roadmap and approach the matter from an entrepreneurship perspective. We believe that focusing merely on the innovative activity for transformation in society and environment is not sufficient, simply because high degree, i.e., new to world, innovation is not intrinsic in low-income places. By default, the problem of inequality cannot be resolved when state-of-the-art innovation is the sole focus of the activity. Low-income countries need to complete the catching up process and this takes time, specific understanding and planning. Capability accumulation has different dynamics at different income levels (Radosevic and Yoruk, 2016). A

transformation by way of catch-up and capability accumulation process in emerging economies is not about the simple accumulation of stock of capital or productivity improvements at the existing technological level; but, it is about the accumulation of a range of diverse capabilities related to production, technology, R&D, etc. (Bruno et al., 2021) Moreover, catch-up cycles differ for different technological activities and sectors in different parts of the world (Lee, 2013). Especially catch-up based on technological capability accumulation needs specific tailoring based on firm and sector related specificities (Peerally et al., 2019). Indeed, Lee (2013, 2019) and Figueiredo and Cohen (2019) show that successful catching-up does not necessarily follow the old and successful routes but create their own path by leapfrogging and adopting to changing socio-economic contexts. In a similar vein, Isenberg's (2010) first advice for a revolutionary entrepreneurial ecosystem is about not imitating Silicon Valley. He also considers an entrepreneurial start-up ecosystem in an emerging context as preceding the innovation systems or knowledge-based economy [see Isenberg (2011) for an example of Rwanda]. We believe if entrepreneurial activity is also taken in the core of the issue, the transformation process may be inclusive of low-income places which then responds to inequality problems. Furthermore, low-income places are not only confined to some countries, but they exist as pockets of poverty in regions of developed and developing countries, cities of some regions, and so on (Sissons et al., 2019). As for upper middle-income and high-income settings, innovation is most of the time inherently embedded in the nature of the entrepreneurial activity. As for lower middle-income and low-income places, further research is needed for how different degrees of innovation is embedded in the entrepreneurship activity.

Indeed, the progression in entrepreneurship theory took a similar route to innovation studies. As we discussed in Section 2, entrepreneurship field's frame 1 can be considered as the entrepreneurship theories based on I-O nexus, frame 2 can be identified as the concept of national system of entrepreneurship or any framework bounded by the nation state. Frame 3, we think, as a transformational stage can be best studied within the EE approach, which is now in its infancy, but it is a promising tool without borders, i.e., allowing both the public and the private sector to operate for a solution towards creating social, environmental, economic and technological impact.

3.3 Entrepreneurial ecosystems for transformational entrepreneurship

In this section, we propose a conceptualisation of transformational entrepreneurship which is based on impact, actors and functions in the EE. One of the first comprehensive definitions of an EE, drawn from the existing definitions in the literature, is given by Mason and Brown (2014, p.5) and focuses on the actors of a system and the connections between them:

> "A set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g., firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g., the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment."

Spigel (2017, pp.49–50) enhances the concept with the particulars of the surrounding environment for entrepreneurial activity and risk-taking characteristic of the main actors and defines EE as follows:

> "The union of localized cultural outlooks, social networks, investment capital, universities, and active economic policies that create environments that support the development and growth of innovative start-ups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high-risk ventures."

Importantly, the EE not only highlights the systemic conditions that support entrepreneurship but also outlines the importance of context as an important factor in understanding entrepreneurship (Acs et al., 2014; Autio et al., 2014; Welter, 2011). As such this contextual focus builds on work that looks at the spatial dimension of economic activity and how localised conditions may influence this (Mason and Brown, 2014; Stam, 2015; Wurth et al., 2021); indeed, entrepreneurial activity has been found to be 'spiky,' or unevenly distributed across space, highlighting the different processes that may influence the entrepreneurial actions (Brown and Mason, 2017).

Very recent contributions provide empirical examination of elements of the EE in different contexts and highlight the issue of efficiency for specific elements (Dionisio et al., 2021) or the existence of plausible configurations to achieve vibrant EE (Cherubini Alves et al., 2021) capturing the heterogeneous nature of ecosystems (Brown and Mason, 2017). Alvedalen and Boschma (2017) call for a clearer framework to understand cause and effect within a dynamic evolutionary approach to EE.

An EE, therefore, has borders defined by a place which can be a district, city, cluster, sector, region, country and these sub-systems are connected to each other. While EEs are considered to be subject to a high degree of heterogeneity, Wurth et al. (2021) emphasise the focus on 'productive entrepreneurship' which focuses on activities that contribute to increasing both output and productive capacity within the economy (Baumol, 1990). Indeed, very little coverage of the types of entrepreneurship is apparent within the EE literature beyond a focus on creating new opportunities that lend themselves to high growth (Wurth et al., 2021).

As such, within an EE activity that occurs in an individual context may be driven by any one or all of necessity, opportunity or purpose-driven entrepreneurship forms. This is an important distinction for two reasons:

1 there is no reason to suppose that an EE can only support high-growth and high-technology entrepreneurship

2 some contexts, particularly those in the developing world, may be predisposed towards necessity entrepreneurship (Reynolds et al., 2002; Acs, 2006).

In addition, the evolutionary nature of EEs has not been extensively examined (Borissenko and Boschma, 2016; Brown and Mason, 2017) therefore there is little understanding of how the types of entrepreneurial activity may change over time as places develop (see Figure 1). Therefore, the level of development within the EE may determine the entrepreneurial mix in that place, and of course may fluctuate over the economic cycle.

Furthermore, our approach is based on aiming at creating an impact in four domains of economic, environmental, social and technological outcomes as a result of entrepreneurial activity, yet this is not made explicit in the EE literature where the role of

context is more attuned to explaining differences in entrepreneurial outcomes across space rather than the differing impacts of entrepreneurship across different domains. Given the range of actors within the EE, there is scope for a range of entrepreneurial outcomes to result from activities within it. Thus, there may be activities that deliver social and environmental impacts whilst others deliver economic and technological. Indeed, there may be other activities where the impacts cut across all domains.

Hence, the question at the start is "how can we generate the best outcome for the society, environment and the economy as a result of the entrepreneurial activity?" In that sense, it is a medium to long term activity which necessitates passion and determination of an entrepreneur. We depart from Figure 1, where we link income levels with entrepreneurial activity and their impact on the four domains. Figure 1 is simplistic but useful because it delivers the idea that the dominant form of entrepreneurship differs at different income levels. Having said that, we agree that entrepreneurial activity is a mix of different forms at each level of income, however their intensity differs across different income levels and resulting in different impacts. Lastly, Schoar (2010) criticises current entrepreneurship policies since they treat entrepreneurs as a homogeneous group of actors that are uniformly affected by economic conditions or policy interventions. Our framework considers entrepreneurs and places as heterogeneous entities.

When developing our framework, we start with the outcomes from the entrepreneurial process, i.e., the impact. We ask "what kind of outcome/impact do we want in the social, environmental, technological and economic domains?" In a sense, this is about what needs to change. This, of course, necessitates determining changes in these outcomes at two to three points in time, i.e., now and short-term impact and/or medium to long-term impact. Hence, involving impact captures the dynamism of entrepreneurial process. Different kinds of change/outcomes are expected at different income levels. We build on Becker's (2001) typology of social impact assessment and categorise impact for micro (the individual), meso (firm or organisation), and macro (city, region, or country) levels. This categorisation implicitly considers income levels, since the intensity of impact on individuals would be observed mostly in low-income and lower middle-income settings as confined to improvement-driven opportunity entrepreneurship and necessity entrepreneurship. The impacts on individual residents in high-income settings would be mostly driven by purpose and opportunity entrepreneurship. Intensity of impact on firms would be observed in all levels of income driven by necessity, opportunity, improvement and purposeful entrepreneurship. Macro level impact would be observed in middle-income and high-income level settings as a result of purpose- and opportunity-driven entrepreneurship.

We list the components of social, economic, environmental and technological impact in Figure 2, using the UN sustainable development goals as a guide to derive the content for these impacts. Although UN SDGs usually apply to developing countries, the most pressing socio-economic and environmental challenges necessitate developed countries to play their part in achieving these goals and moreover guide for the next steps in developing new technologies for sustainable growth. Elaborating on these four dimensions also allows the framework to be tested at different income levels and also at individual, family, community, organisational, and place-based levels of city, region or nation. Therefore, measuring transformation by 'impact' requires a longitudinal approach at the captures of different points in time. Consequently, progress is reported as the transformation taking place, importantly capturing whether it occurs through the

individual, family, community, organisation, or place rather than merely looking at an aggregate level of impact at country level.

Figure 1 Different patterns of entrepreneurial activity and impact relationship at different levels of income (see online version for colours)

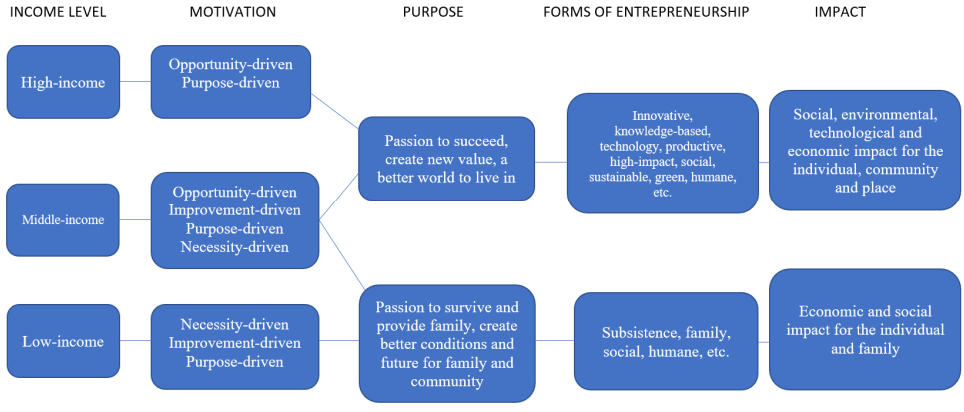
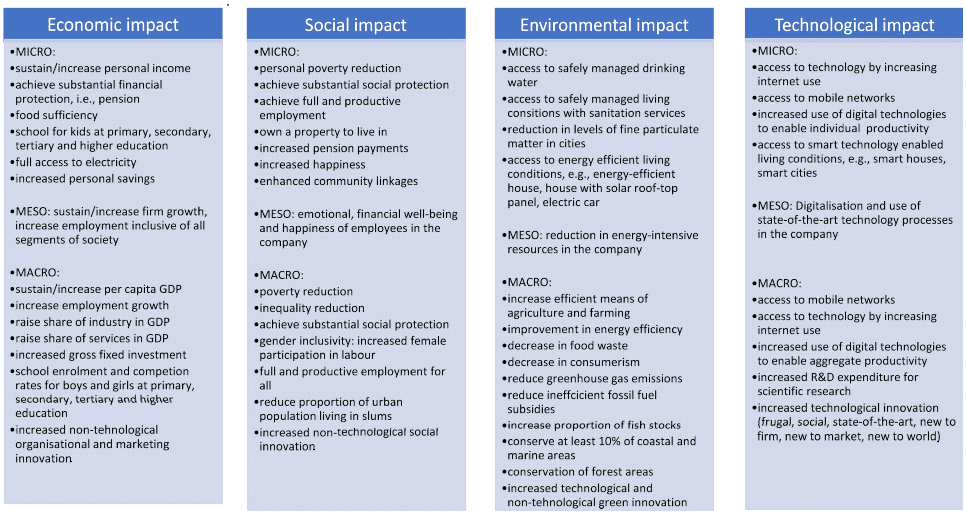


Figure 2 Dimensions and components of impact for individual (micro), organisational (meso) and place-based (macro) settings: outcomes to be achieved from transformational entrepreneurial activities (see online version for colours)



Source: Based on Becker (2001) and UN (2021)

The combined effect of economic, social, environmental and technological impacts is considered to result in inclusive growth which is a multidimensional measure. Inclusive growth is about economic growth providing opportunities for employment in all segments of the society (Klasen, 2010). In the core of inclusive growth there is economic growth but it also prioritises the need that individuals are linked to existing and newly created opportunities provided by quality jobs (Sissons et al., 2019). Inclusive growth approaches based on innovation focus more on equality of opportunity and this resonates

well with the concept of entrepreneurship (George et al., 2012; Peerally et al., 2019). For instance, role of entrepreneurship and new ventures in creating jobs is overlooked in the entrepreneurship literature. The focus on job creation have been mostly on the high-growth firms (Coad et al, 2014). Indeed, the contribution of 'any' entrepreneurial start-up to the economy has been questioned and regarded as blanket policy on entrepreneurship and damaging (Shane, 2009; Nightingale and Coad, 2014). Nonetheless, Kuratko and Audretsch (2021) remind that small- and medium-sized enterprises (SMEs) account for over 90% of businesses and 50% of employment of the worldwide population, contributing up to 55% of GDP in developed economies. Similarly, in the less-developed economies, small business entrepreneurship is typically one of the first means by which working families accumulate wealth beyond savings from wages and pension contributions. For many, they provide the primary ladder to the middle class and beyond (Samans et al., 2015). Once these entrepreneurial ventures succeed they generate opportunities for other members of the society. Using inclusive economic growth as a measure of performance, this overlooked aspect of entrepreneurship will be highlighted. Green and innovation specific contexts of transformational entrepreneurship, by way of human capital at individual and firm levels, can pave the way for achieving desirable outcomes to this respect. At sectoral, regional or country levels progressive, far-sighted and bold policies can link green and innovative entrepreneurship to inclusive economic growth aspirations and generate the transformational aspect of entrepreneurial activities.

The different levels of impact demand different tools, actions, functions in the ecosystems across different income levels. Linked to that, our next question is "what needs to be done to generate the transformation measured in terms of impact?" For that, we build on the EE frameworks proposed by Stam (2015, 2017), Mason and Brown (2014), Isenberg (2011), Hekkert et al. (2007) and Bergek et al. (2008) and integrate our Figures 1 and 2 along with the activities and functions of an EE. Table 2 presents the Integrative framework for transformative power of entrepreneurship from an EE perspective: actors, conditions, systemic elements, activities/functions for transformative change, outputs in the form of entrepreneurship and impacts by level of income in places. Measurement issues related to elements of an EE in general have been advancing recently (Radosevic and Yoruk, 2011, 2013; Acs et al., 2014, Leendertse et al., 2021).

The activities and functions in the ecosystem are tools to execute transformative change. The functions approach in socio-technical systems have been successfully conceptualised and implemented in terms of empirical applications particularly in niche sectors (Bergek and Jacobsson, 2003; Jacobsson and Bergek, 2004; Hekkert and Negro, 2009). The activities approach in the innovation system perspective is first introduced by Edquist (2005) and developed further with empirical testing (Radosevic et al., 2010; Radosevic and Yoruk, 2013). These have usually been implemented and tested in the context of advanced and developed countries. We argue that the activities and functions have different orientation, degrees, intensity or density across income levels and also shaped by the institutional mode of the system (Radosevic and Yoruk, 2021). Due to these, the complementarities and the interdependencies between functions and activities are differently formulated at different levels of income.

Table 2 Integrative framework for transformative power of entrepreneurship from an entrepreneurial ecosystem perspective

Aspects of ecosystem	*Components of ecosystem aspects*		*Income level*
Actors	Nascent entrepreneurs, entrepreneurs, start-ups, established firms, government, universities, NGOs, support agencies		
Framework conditions	Institutions, culture, market, technology, environment, infrastructure		
Systemic elements	Leadership, networks, finance, human capital, knowledge-new technology-innovation, support services		
Activities/functions for transformative change	• Opportunity identification, exploration and exploitation by the entrepreneurs	Opportunity identification vs. exploration vs. exploitation dependency of entrepreneurs	Low-income, middle-income, high-income settings
	• Entrepreneurial orientation, autonomy, proactiveness, risk-taking behaviour of the entrepreneurs	Autonomy vs. control, proactiveness vs. inertia, risk-taking vs. risk-averse orientation of entrepreneurs	Orientation of activities and functions
	• Links between entrepreneurs and the stakeholders, i.e., regional/national development agencies, NGOs, value chain, venture capital providers, research institutes and universities, formal and informal links, social capital, customers	Arm's length vs. relational networks	
	• Membership of entrepreneurship related associations	Connected vs. disconnected agencies	
	• Skills formation: entrepreneurship training at educational institutions/firms	Private vs. public sector centred, academic vs. practice-based skills formation	
	• Knowledge and information diffusion through linkages that increase knowledge of the markets, technologies, finance opportunities and organisational development	Strong vs. weak content of knowledge	
	• Knowledge, new technology, innovation generation provision	Innovative vs. non-innovative mindset and environment	
	• Finance provision	Bank-based vs. capital market-based, strong vs. weak venture capital financing	
	• Digitalisation provision	Enhanced digitalisation vs. hindered digitalisation infrastructure and mindset	
	• Environmental orientation	Environmentally-oriented vs. not environmentally-oriented mindset and infrastructure	
	• Market formation	Highly regulated vs. deregulated market environment	
	• Guidance for changing laws, regulations, etc.	Proactive vs. inert governance	
	• Creation of legitimacy	Niche protection vs. non-protection	
Outputs	Innovation-driven opportunity entrepreneurship, improvement-driven opportunity entrepreneurship, necessity entrepreneurship, purpose entrepreneurship		
Impacts	Economic, social, environmental, technological impact at individual, community, organisational and place-based levels		

Source: Based on Stam (2015, 2017), Mason and Brown (2014), Isenberg (2011), Hekkert et al. (2007), Bergek et al. (2008), Edquist (2005), Radosevic et al. (2010) and Radosevic and Yoruk (2021)

Table 2 shows the possible set of activities and functions in the EE which aims to explain 'what needs to be done' and 'how' a transformative process can occur through entrepreneurial activity. These activities and functions guide as the characteristics of the entrepreneur and the firm or stem in the supportive environment and policy frameworks to encourage entrepreneurial activity. Entrepreneurial opportunity recognition, exploration and exploitation; orientation for entrepreneurship in terms of autonomy, risk-taking and proactive behaviour of individuals and firms; the networks and ties that the entrepreneurs can embed themselves in; skills formation processes that arise in the companies and also at universities as raising awareness in entrepreneurship for young skills; diffusion of information related to all aspects of entrepreneurship regarding markets, finance and technologies; provision for digitalisation; environmental orientation; guidance for changing laws, legislations, rules and norms; creation and acceptance of legitimacy for niche products and technologies are tools for how to generate the transformation. As illustrated in Table 2, the orientation of the activities and functions within a specific setting determine how effective they can be on creating the impact through different forms of entrepreneurship.

The opportunity discovery and exploitation process results in different forms of entrepreneurship resulting in different types of impact in different places based on availability or creation of different types of opportunities. In general terms, by far the best evidence we have to this respect is at country level as studied by the GEM initiative. For instance, low- and lower middle-income countries such as India, Egypt, Guatemala and Morocco report the highest level of adults (more than 65% of 18–64 years old adults) who rarely see an opportunity and even if they do they rarely act proactively to take on the opportunity; whereas these rates are less than 50% in high-income countries (Bosma et al., 2020). These may be largely associated with ease of doing business perceptions of individuals, whether they think they possess the right skills and knowledge to start a firm and fear of failure, i.e., the level of risk-taking.

From a systemic perspective, an ecosystem naturally is formed of networks. Form and shape of networks may differ according to how well the ecosystem functions. In that sense, prevalence of arm's length interactions or relational knowledge-based interactions with actors in the system generate different results and impact. Where necessity entrepreneurship prevails, entrepreneurs may be more embedded in social networks and opportunity entrepreneurship may flourish in well-developed ecosystems when higher number of actors are connected to each other. Active and well-functioning ecosystems also have more to offer entrepreneurs for successful start-ups and scale-ups. Through these linkages all kinds of information and knowledge related to markets, technologies and legislative environment can be shared. Where networks are dense and bonds are strong, more information flows to the new start-ups.

Available pool of skills is important factor in an entrepreneurial ecosystem. In its absence one way is to attract skills. Silicon Valley has been a very good example of attracting skills where there is much to offer to potential entrepreneurs. However, most developing or less developed places lack infrastructure where skills would not be easy to attract. Planning and organising for formation of skills via entrepreneurship education and training at educational institutions and firms gains importance in these circumstances (Jones et al., 2021; Mendoza et al., 2021). Provision of such education can take place as private vs. public sector centred as well as academic vs. practice-based skills formation depending on the available infrastructure in places and can progressively be expanded.

Access to start-up finance and especially sustained financial support for funding of innovative activities is also a key feature of a transformative entrepreneurial ecosystem. Finance provision especially for highly innovative and risky projects need nurturing via strong venture capital financing. Effective venture capital, however, is by no means is a guarantee for scaling up of entrepreneurial ventures. For sustained entrepreneurial innovative activity ventures should be continuously supported through either via bank-based or capital market-based finance systems.

Digitalisation of platforms has been seen as a leverage from necessity entrepreneurship to improvement-driven and to innovation-driven opportunity entrepreneurship. Examples of these include survival of small firms that could rapidly digitalise their operations during the COVID pandemic in developed economies. Digitalisation is also seen as a respond to the traditional dichotomy of jobs within the necessity vs. opportunity entrepreneurship in low- and lower middle-income economies (Bosma et al., 2020). For positive effects of digitalisation on entrepreneurship a democratisation lens is necessary rather than centralisation, since we should avoid being trapped into the digital successes of few very large tech giants which seem to drive and indirectly influence entrepreneurship (Kuratko and Audretsch, 2021). For instance, in emerging markets small firms and start-ups motivated by digital innovation that is coupled with fast or even slow internationalisation are able to produce high level innovation products which in turn can pave the way for scaling up in the long term (Yoruk et al., 2021).

Given the environmental challenges faced by the communities, environmental orientation and provision in entrepreneurship policies paves the way towards purposeful entrepreneurship forms to emerge and establish themselves as dominant forms. This kind of mindset has the most potential to create highest impacts, i.e., environmentally, socially, technologically and economically. Creation of opportunities and legitimacy in niche areas related to environmental protection is important in that sense. Proactive guidance in changing laws and regulations by policy and decision makers have the potential to accelerate this process and encourage entrepreneurial activity in confidence and without delays.

The activities and functions of a transformative entrepreneurial ecosystem will largely depend on the available resources, their weaknesses and strengths and the ways that weak aspects are strengthened in distinct settings.

4 Conclusions

This paper explored the transformative role of entrepreneurship from an entrepreneurial ecosystems perspective to generate positive social, economic, environmental and technological impact. We first compared different conceptual approaches studying entrepreneurship in the research field. We discussed the role of different forms of entrepreneurship in terms of necessity, opportunity and purpose-driven entrepreneurship and how these forms of entrepreneurship can be associated with inclusive socio-economic growth at different levels of income. We argue that distinctive types of entrepreneurship through varied orientation of activities and functions have crucial roles to play at diverse income levels. The extant entrepreneurship literature overlooks especially entrepreneurship in low- and lower middle-income places. We proposed a

conceptual framework where entrepreneurship can be studied for its transformative effects both in high- and low-income places.

It must be noted that the proposed framework is exploratory in nature and a preliminary investigation. It has the scope for investigating the subsistence entrepreneurship and to determine how to take it to opportunity or purpose-driven entrepreneurship in low- and lower middle-income places for a transformative impact on individuals, companies and societies. It also allows for exploring the capacity for high-growth entrepreneurship in middle- and high-income places but also considering societal and environmental wellbeing of communities. Ultimately, our aim has been to respond to social, economic and environmental challenges and the growing inequality via the entrepreneurship tool. We studied the transformative role of entrepreneurial activity which can help decrease inequality and mitigate social, economic and environmental problems.

Our paper proposes directions for future research and empirical applications. The framework can be studied from a holistic perspective. The framework can also be broken down to its aspects and components at different income levels and studied using either qualitative or quantitative methods. Evidence emerging from these studies can be integrated to understand the overtime changes or evolution of the EE driven by transformative effect of entrepreneurship in distinct settings.

The framework we proposed is not without limitations. There is scope for further improvement by taking into consideration the state-business relations, the effect of entrepreneurial activity in general on the jobs market, the role of technological capability building in small firms to scale up and the cooperative forms of enterprise ownership which can lead to inclusive growth with socio-economic impact specifically in low- and middle-income countries. Although these points are not fully within the scope of this paper, each of these areas deserve extensive discussion to fully examine transformative potential of entrepreneurship within an entrepreneurial ecosystem. Their consideration and examination will bring about the next level in an entrepreneurial ecosystem which is scaling up of the ventures for sustained impact. These issues are also closely related to the design of public policies to build up and stimulate entrepreneurial ecosystems, particularly in the context of developing economies to bring about the desired impactful outcomes.

Overall, policy design needs to have an all-encompassing approach by way of integrating actors, conditions, elements, activities and functions in the ecosystem. This is a challenging task for policymakers for several reasons. First, places have heterogeneous character in terms of pre-existing resources, actors, other framework conditions and elements of the system and the most successful cases in many instances may not be fully supervisory for others. Second, in terms of priorities as to who will lead the transformative changes in the ecosystem there is need for a combined approach for bottom-up and top-down policies. The degree of these two kinds of policies need specific tailoring in different settings according to level of industrialisation and the framework conditions in the ecosystem. Where institutional conditions are not favourable for entrepreneurial activity to flourish, there is role for state to enact these conditions. Third, we believe credible measures are needed to guide policymakers for effective policy-making. In the last decade, there have been quite an improvement in developing these measures by supranational bodies, i.e., GEM, WEF, UN, WB. However, there is still scope for acknowledging the multidimensional character of entrepreneurship and innovation related measures and grounding them in theory-based frameworks. Our effort

in that sense considers major differences between developed and developing parts of the world. For that, more evidence is needed in the form of qualitative and quantitative studies to examine different forms of entrepreneurship in especially low- and middle-income economies for their effects on inclusive growth. Given these points, we call for empirical studies to examine these factors to provide insights and recommendations on how transformational entrepreneurship can occur within entrepreneurial ecosystems.

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Notes

1 Interested readers can visit the related website: https://www.oecd.org/cfe/leed/entrepreneurialecosystemsandgrowth-orientedentrepreneurshipworkshop-netherlands.htm.

2 For instance, GEM 2019–2020 report states that from 2010 to 2018 several low- and lower middle-income economies such as Indonesia, Iran, Vietnam and Tunisia have shown steady increase in motivational index which is measured by percentage of those involved in TEA (Total early stage entrepreneurial activity – the proportion of the working-age adult population actively engaged in starting or running a new business) that are improvement-driven opportunity-motivated, divided by the percentage of TEA that is necessity-motivated. Therefore, GEM recommended this index to be involved in mid-term development plans.

3 See the example of MPesa in Kenya in this context in Subsection 3.2. We thank an anonymous referee for taking our attention to this example.

4 Other scholars, however, argue that the business opportunities brought forward by digitalisation in low-income places have to be interpreted with more caution. There are arguments that this kind of shared value in subsistence marketplaces can be captured by the elite leaving little for the vulnerable members of the society (Raghubanshi et al., 2021). Gibson (2016) shows that in the case of M-Pesa it was not the very poorest who benefited mostly but the higher income groups. Entrepreneurial activity generation effects should also account for the job displacement factor (i.e., jobs lost from the existing businesses due to new entrepreneurial activity emerging) especially in subsistence places where demand is not infinite (Bateman et al., 2019).

5 TEA covers nascent entrepreneurs involved in setting up a business and owner managers of businesses up to 3.5 years old (Bosma et al., 2020).