



Supporting entrepreneurs: A systematic review of literature and an agenda for research



Tiago Ratinho^{a,e,*}, Alejandro Amezcua^b, Benson Honig (Ph.D.) (Professor)^c, Zhaocheng Zeng^d

^a IESEG School of Management, 1 parvis de La Défense - 92044 Paris - La Défense Cedex, France

^b Whitman School of Management, Syracuse University, 721 University Ave, Syracuse, NY 13244, United States

^c DeGroote School of Business, McMaster University, 1280 Main St W, Hamilton, ON L8S 4L8, Canada

^d Kansai Gaidai University, 16-1 Nakamiyahigashino-cho, Hirakata-shi, Osaka, 573-1001, Japan

^e LEM-CNRS 9221

ARTICLE INFO

Keywords:

Entrepreneurship Support
Technology entrepreneurship
Systematic Literature Review
Entrepreneurship

ABSTRACT

Entrepreneurship has become a cornerstone of economic development. The public awareness of this phenomenon spurred great interest from the academic community and policy makers alongside the creation of a vast range of entrepreneurship support initiatives. We conduct a systematic review of 122 academic articles published during a thirty year period between 1985–2015 that help to identify a series of theoretical, empirical, and practical gaps that form the basis of a research agenda. For instance, there is a shortage of conceptual articles and few empirical studies generating theoretical contributions; samples are small and idiosyncratic; context is rarely considered; and that mechanisms of ES are largely unknown. We propose that ES should develop along four main themes that ameliorate these exposed gaps: acknowledge and understand the heterogeneity of entrepreneurs and new ventures; apply existing theories to ES; improve methods and research design; and integrate ES into the ecosystem of support.

1. Introduction

Entrepreneurship has increasingly been associated with economic growth and innovation, such that local, regional, national, trans-national and multi-lateral agencies actively seek ways to encourage, increase and facilitate the emergence and growth of new firms (Mazzarol, 2014; Szirmai et al., 2011). As a result, researchers have accompanied this trend with growing interest in the scholarly understanding of entrepreneurship support (ES) for three primary reasons. First, there are findings that new firms, and specifically fast growing young firms, contribute disproportionately to new employment than larger incumbent firms (Birch, 1987; Haltiwanger, 2015). Small business and labor economists, strategy researchers, and those focusing on population ecology are examples of scholars heavily invested in pursuit of understanding these trends (e.g. Davis et al., 1996; Headd and Kirchhoff, 2009; Litwin and Phan, 2013; Neumark et al., 2010; Wit and Kok, 2014). Second, policymakers around the world have been experimenting with new policies, programs, and incentives to encourage entrepreneurship (Gilbert et al., 2004) drawing interest among scholars of public policy and administration, urban economics, and innovation (Adams et al., 2016; Ellwood et al., 2016). Third, as specific

mechanisms for supporting entrepreneurs became institutionalized, the field of research began developing niches of scholarly specialization including dedicated journals and conferences (Phan et al., 2005). Many of these niches reflect the heterogeneous factors that precipitate commercial innovation. For example, U.S. government support for major technological innovations frequently began with the military and NASA, and were commercially supported by a wide range of public-private partnerships as well as legislative measures (Chiang, 1992; Price and Siegel, 2019). Unfortunately, assessing what has taken place in such a highly diversified field (Sorenson and Stuart, 2008) requires bridging across a number of literatures, representing a barrier for both scholars and practitioners. This systematic literature review on entrepreneurship support provides a critically needed contribution for examining the range and impact of these technological activities.

Academic thought on ES is difficult to translate to public policy. Perhaps the most influential theoretical framework that popularized ES in the eyes of policy makers is the triple-helix model of innovation (Etzkowitz and Leydesdorff, 1995; Leydesdorff and Etzkowitz, 1996, 1998). The notion that innovation is the result of coherent efforts between universities, industry, and government triggered the establishment of a variety of initiatives to support the prime active mechanism

* Corresponding author.

E-mail addresses: t.ratinho@ieseg.fr (T. Ratinho), aamezcua@syr.edu (A. Amezcua), bhonig@mcmaster.ca (B. Honig), zengzc@kansai.ac.jp (Z. Zeng).

<https://doi.org/10.1016/j.techfore.2020.119956>

Received 24 July 2018; Received in revised form 26 October 2019; Accepted 4 February 2020

Available online 14 February 2020

0040-1625/ © 2020 Elsevier Inc. All rights reserved.

responsible for the transfer of technology to markets - the entrepreneur. While many efforts also involve regulatory arrangements, such as taxation adjustments and access to capital (Nasra and Dacin, 2010), others addressed institutional activities in higher education (Morris et al., 2013) and efforts to promote academic spin-offs (R. Parker, 2008; Patzelt and Shepherd, 2009). University technology transfer offices and intellectual property management has become a growing ambitious activity coordinated by Universities world-wide (Mazzarol, 2014; Minniti, 2008; Nasra and Dacin, 2010; Szirmai et al., 2011). As a result, in more recent years, ES scholarship became more interdisciplinary which poses a challenge in synthesizing its findings. ES research begins with motivations to understand specific phenomena in our economies, communities, and lifestyles, it lacks a unified set of theories to guide inquiry. We set out to add to the literature on ES by providing a landscape of ES sources and types making it easier for policy makers, researchers, and practitioners spread through diverse sub-fields to navigate the scholarly research on the subject. Further, we join the contemporary discussions about the relevance of supporting entrepreneurs (Shane, 2009) and the need for an approach to practice in entrepreneurship research (Claire et al., 2019).

Our systematic review of ES is the first of its kind in the literature. We introduce to the academic discussion an overarching view of ES in which the multiple initiatives are reviewed simultaneously and against a unified structure. Taken together, our review exposes the fragmentation of this body of literature and the atheoretical basis of nearly all articles reviewed. We show that the majority of the empirical studies are based on small and unique samples, frequently too idiosyncratic to yield generalized findings. The mechanisms of ES are largely ignored and, perhaps as a result, the context is rarely considered when analyzing the impacts of ES in startups.

This paper is structured as follows. We begin by delineating the domain of ES and search for an encompassing definition to guide our literature search. After the sample construction of 122 articles on ES published in the period 1985–2015, we provide an overview of sources and types of ES, discussing findings, outcomes and implications. Our research agenda is structured along four principal dimensions: we discuss how different types of entrepreneurship must be considered when further studying the impacts of ES; we argue that existing theoretical frameworks in management research would contribute to a better understanding of the phenomena associated with ES; we discuss how the field is ripe for updated research designs and methods; and we propose that ES should never be studied independently of its context.

2. What is ES?

ES is designed to infuse new and young firms with sustaining elements that increase survival and development. ES sources can be tangible such as granting financial resources to a new firm, or intangible, such as providing professional advice from accountants, investors, and lawyers. We build on Hanlon and Saunders's definition (2007, p. 620) and define ES as [the]:

“Provision of valuable resources to entrepreneurs by individuals or organizations, which carry structured activities to facilitate the imminent establishment of a new independent firm, increase survival chances, or promote long-term growth.”

This operational definition of ES differs from other related concepts in the literature in a few important aspects.¹ For instance, the recently emerged concept of the entrepreneurial ecosystem is an integrative framework that explains different levels of entrepreneurial activity across regions (Mack and Mayer, 2016; Stam, 2015). Entrepreneurial ecosystems consist of interconnected networks that create the

conditions in which entrepreneurs develop their new ventures (Feld, 2012) while ES deals with *structured activities* that are in a way purposeful and unidirectional. Additionally, our delineation of the ES phenomenon leaves room for the inclusion of programs that prepare and train individuals for entrepreneurship that would be left out of related theoretical frameworks such as institutional intermediaries. These include workforce development programs (Chrisman et al., 2005), as well as for-profit and not-for profit sources of support (Hanlon and Saunders, 2007). Our view of ES includes support taking place *before* and *after* the establishment of a new venture as well as support given in the growth and expansion phases of the startup.

We examine individuals and institutions that provide resources to entrepreneurs for the imminent establishment of any new venture. Consequentially, we deliberately exclude from this contribution the following literature streams to provide a more focused analysis of ES directed at the imminent establishment of any new venture:

- i) Corporate entrepreneurship, since this refers to a process of strategic renewal within existing organizations, the creation of new business units, and redefinitions of products and existing markets (Sharma and Chrisman, 1999; Zahra, 1991);
- ii) Entrepreneurship education programs, because they train individuals to develop entrepreneurial skills that can be applied in multiple contexts extending beyond the scope of the immediate creation of new firms (Kuratko, 2005; Zahra et al., 2011); and
- iii) Incidental sources of support such as that given by family members (Powell and Eddleston, 2013), as those are very difficult to monitor and do not often exist independently from other sources.

ES is decomposed in sources of support and types of support (Hanlon and Saunders, 2007). Sources of support define who provides a certain resource (i.e. individuals or organizations). Types of support define the resources provided to the entrepreneur. Each source of support can provide multiple types of support and, similarly, one particular type of support can be provided by many sources (Hanlon and Saunders, 2007). This conceptualization is attuned to the common prescription to entrepreneurs to “get all the help possible” which leads to one entrepreneur being in essence supported by a constellation of valuable resources among multiple possible combinations of sources and types of support available (Hanlon and Saunders, 2007).

Our operational definition of ES helps us view the historical importance of ES namely in initiatives such as the Small Business Innovation Research (SBIR) program. Established in the 1980s, the program provides funding for innovation research to small technology-based firms. The program has been shown to be a tool that helped increase American firms' competitiveness (Lerner, 1999, 2000). More recently, other sources of support have been identified that provide new firms with intangible resources such as knowledge, legitimacy, and reputation (Brush et al., 2001). This form of ES has been shown to facilitate and champion the emergence of networks that contribute to the growth of local knowledge capital assisting the development of the local entrepreneurial ecosystem. Further, researchers have shown that the concentration of universities, companies including startups, and other amenities boost regional economic prosperity (Benneworth and Ratinho, 2014; Goldstein and Drucker, 2006).

3. Methodology

We follow the recommendations of Tranfield et al. (2003) and other recent systematic reviews (Bruneel and De Cock, 2016; Dorasamy et al., 2013; Grégoire et al., 2011; López-Duarte et al., 2016; Lu et al., 2018). Systematic reviews are a widely used method to organize and synthesize research findings particularly helpful to in large and complex bodies of research such as Entrepreneurship. The procedure is transparent, rigorous, and protocol driven allowing replication (Sengers et al., 2016).

¹ We thank an anonymous reviewer for raising these points that helps us to better delineate our operational definition of ES.

Table 1
Sampling criteria.

Criteria	Rationale
a) General Top Management journals	Following Short (2009) , we looked at Academy of Management Journal, Academy of Management Review, Strategic Management Journal, Journal of Management, Organization Science, Management Science, Administrative Science Quarterly and Journal of Management Studies as general management outlets.
b) Entrepreneurship journals	Given the specificity of the topic, we also included in our search entrepreneurship journals: Journal of Business Venturing, Entrepreneurship Theory and Practice, Journal of Small Business Management and Strategic Entrepreneurship Journal (Klotz et al., 2014 ; Shepherd et al., 2015).
c) Technology and Innovation Management and other Entrepreneurship journals	Popular entrepreneurship support mechanisms such as business incubation have found their home in other specialized journals such as Technovation, Journal of Technology Transfer and Research Policy (Linton and Thongpapanl, 2004 ; Ratinho et al., 2015 ; Stewart and Cotton, 2013). Further, we've included Entrepreneurship and Regional Development and Small Business Economics to capture other important perspectives in the topic (Fried, 2003 ; Low and MacMillan, 1988).
d) Full length journal articles or research notes	We narrowed down our search by excluding book review, editorials, or dialogue pieces.
e) Presence of the following combinations of keywords in the title, abstract, or keywords: EITHER (entrepr*, new venture*, small business*, new firm*, nascent firm*, young firm*, start(-)up) AND (support, infrastructure, training, policy, development, ecosystem)	In line with criterion sampling, we used combinations of words specific to entrepreneurship support. This criterion guarantees that articles are selected based on how the authors chose to represent and publish their research.
f) Specific searches	We searched for "Organizational sponsorship", "Entrepreneurship public policy" and others to ensure that no major contributions would be overlooked.

3.1. Sampling and screening procedure

We used criterion sampling to identify our sample ([Grégoire et al., 2011](#); [Patton, 2014](#)) (Table 1). Keywords used yielded articles whose authors purposefully represented their study as ES.² This procedure allows us to cross disciplinary borders and build a sample of articles that span multiple theoretical lenses used to research the phenomenon of ES.

We selected full articles published in three sets of journals: first, we looked exclusively at General Management and Entrepreneurship journals. The low number of articles obtained (see Table 2) led to a broader search that included: Management of Technology/Technology and Innovation Management journals known for publishing technology entrepreneurship research ([Linton and Thongpapanl, 2004](#); [Ratinho et al., 2015](#); [Stewart and Cotton, 2013](#)); and other renowned Entrepreneurship journals ([Fried, 2003](#); [MacMillan, 1991](#)).

There are three methodological advantages in our sampling criteria that ensure the validity of our sample. First, we select articles published in recognized high-impact academic journals, which increases the relevance and quality of our sample. Second, we automatically scan a large population of articles reducing the error associated with manually navigating multiple volumes of the selected journals. Third, keyword searches yielded articles whose authors purposefully represented as ES studies. Using these criteria, we counted 407 articles.

We then manually verified the relevance of each article abstract excluding articles showing at least one of the following characteristics:

- Use of the search keywords but no relation between the article's framework, research questions, or analysis and our review topic.
- Articles falling outside the scope of ES. We excluded articles on corporate entrepreneurship, entrepreneurship educational programs, franchising, and internationalization of multi-national companies as sources and types of support were not visibly identified ([Hanlon and Saunders, 2007](#)).

² We understand that this procedure is not without limitations. However, we wish to focus our discussion on scholarly research intended to make contributions to the entrepreneurship support body of knowledge. The discussion section of this article reviews other literature that the authors consider valuable to the understanding of this phenomenon.

The final sample contains 122 articles published in the period between 1985–2015 (Table 2 and Table 3).

3.2. Sample overview

The articles in our sample were coded based on their content (see Table 4 for coding variables). Our aggregated analysis shows that a particular source of support can deliver several multiple types of support (Table 5) and have multiple outcomes (Table 6).

The general impact of ES, measured as new firm creation, survival, and performance of supported firms, is overall positive. That is, supported entrepreneurs who enjoy one or more types of support, are in general more likely to survive and show superior performance. However, as we take a closer look at studies, we see that a large disparity exists in dependent variables researched, the multitude of contexts in which studies were conducted, the small sample size of many empirical settings, and the date of each study. For instance, new venture creation is operationalized as the decision of individuals to start a business ([Dubini, 1989](#); [Shabbir and Di Gregorio, 1996](#)) or the emergence of industrial clusters as examples of regional entrepreneurial developments ([Carayannis et al., 2006](#); [Wonglimpiyarat, 2010](#)). Similarly, performance is measured as R&D alliances ([Hsu, 2006](#)) or medium-term equity financing ([Baum and Silverman, 2004](#)).

The majority of articles in our sample were empirical (117 articles) (Table 7). The few conceptual studies found (5 articles) do not cover all sources and types of ES compromising its generalizability. Further, we observed that only eight empirical studies generate ES theoretical insights based on empirical findings.

We found nearly equal amount of qualitative and quantitative articles, 52 and 56 respectively; mixed methods account for 9 articles in our sample (the remaining 5 are the previously mentioned conceptual articles) (Table 7). The analysis per source of support reveals similar patterns. We found fewer articles focusing on technology-based ES (52 articles) than those researching general ES (70 articles); however, the analysis per sources of support reveals that research on business incubators, university, and science parks disproportionately focuses on technology-based ES.

We looked at the use of literature in each study to understand better the main theoretical patterns of papers. About a third of studies test existing theories (36.1%) with an equal amount referencing past studies (36.9%). Phenomenological studies account for 16.4% of the articles found in our sample. Only 10.7% of studies (13 articles) generate

Table 2
Sources of articles.

	Journal	Keyword sampling	Screening
General Management Journals	Academy of Management Journal (AMJ)	6	1
	Academy of Management Review (AMR)	3	1
	Administrative Science Quarterly (ASQ)	3	0
	Journal of Management (JoM)	4	0
	Journal of Management Studies (JMS)	9	1
	Strategic Management Journal (SMJ)	16	0
	Organization Science (OS)	6	0
	Management Science (MS)	13	1
Entrepreneurship Journals	Journal of Business Venturing (JBV)	75	28
	Strategic Entrepreneurship Journal (SEJ)	1	1
	Journal of Small Business Management (JSBM)	18	7
	Entrepreneurship: Theory and Practice (ETP)	24	3
Specialty TIM	Technovation (TEC)	45	21
	Journal of Technology Transfer (JTT)	25	13
	Entrepreneurship and Regional Development (ERD)	80	17
	Small Business Economics (SBE)	40	16
	Research Policy (RP)	39	12
	Total	407	122

theoretical insights about ES. These findings suggest that scholars largely overlook generating theory for ES. Additionally, we see that theoretical insights are not generated in studies investigating multiple sources of support which may compromise their soundness.

Table A.1 lists the theoretical backgrounds used in studies that test existing theories as described by the authors. The most cited theoretical backgrounds include Resource Based View/Dynamic Capabilities appearing eight times; Institutional theory/environment appearing seven times; Network/networking appearing six times; and Economic theory and Resource dependence theory appearing three times. However, only one article focuses on testing a single theoretical stream; most studies combine and adapt one or more theoretical backgrounds to study sources and types of ES. While this illustrates the multidisciplinary nature of entrepreneurship studies, it also highlights the lack of a consensual theoretical framework to study the phenomenon.

We coded the empirical basis of each study to understand the most researched contexts of ES. In both quantitative and qualitative studies, the most frequently used unit of analysis is the entrepreneur (pre-venture, in some cases) and the startup firm (see Table A.1). Empirical studies focusing on a single source or type of support were often based on well-delineated geographical regions.

4. The landscape of entrepreneurship support

This section is an overview of the sources of ES in our sample. For each, we examine the types of support offered, the most common researched outcomes, main findings, and recommendations found in the literature (Table 8).

4.1. Government

Governmental support refers to the discourse on policies and regulations designed to support pre-start, startups, and early stages of the entrepreneurial process with the aim of encouraging more people to found new businesses (Lundstrom and Stevenson, 2006).

Entrepreneurship policy formulation starts with the identification of an interest area, involves multiple contacts with stakeholders, bolstered by supporting evidence, and ends with a public announcement often simultaneous to the publication of a white paper (Arshed et al., 2014). Firms' characteristics and specific contextual factors such as local endowments should be attended to particularly when the aim is to support

technology-based entrepreneurship (Mason and Brown, 2013). The aim of entrepreneurship policy ranges from promoting new ventures (Gilbert et al., 2004) to supporting inter-firm alliances and collaborations (Aoyama, 1999) and it can take the form of investments in infrastructure (Audretsch et al., 2015; Van De Ven, 1993) or financing startups (Cowling, 1998; Rothwell, 1985).

Entrepreneurship policy has different intended targets: the design of national policies can address historical deficiencies, implement global practices, and accelerate a country's convergence. We find examples of technology transfer mechanisms in Saudi Arabia (Alshumaimri et al., 2010), and modernizing innovation policy in Russia (Klochikhin, 2012) and Croatia (Švarc, 2006). Developed economies also attempt to increase entrepreneurship levels by promoting technology diffusion (Vekstein, 1999), supporting R&D (Gallaher and Petrusa, 2006), favoring specific industries (e.g. nanotechnology) (Mowery, 2011), and revitalizing manufacturing R&D strategies (Tassey, 2010). On the regional level, entrepreneurship policy is also multidimensional, with policies motivated by social and economic factors (Hall et al., 2012; Huggins and Williams, 2011).

Theoretical contributions posit that governmental ES in the form of policy discourse shapes how institutions affect the emergence and growth of new companies (Minniti, 2008). Political structures that emphasize individual rights are said to increase breakthroughs and diffusions of innovations through entrepreneurship (Spencer et al., 2005) justifying governmental intervention and support (Michael and Pearce II, 2009). Additionally, Van de Ven (1993) argues that infrastructure creates a public endowment of knowledge and a pool of available skilled labor for new firms and aspiring entrepreneurs. These strategic networks can provide enhanced performance (Gulati et al., 2000).

Conversely, empirical studies find that the combination of high levels of taxation and governmental involvement may actually amplify the economic impact of entrepreneurship (Bjørnskov and Foss, 2013) and that business regulation has a positive impact on the creation of new businesses (Murdock, 2012). However, these effects are attenuated by other factors such as knowledge spillovers and capital availability (Stenholm et al., 2013).

Audretsch et al. (2015) confirm that some types of infrastructure impact entrepreneurial activity in certain industries. For instance, broadband availability ignites more startups in technology oriented services than highways or railroads in Germany (Audretsch et al.,

Table 3
Year distribution per source of articles.

	Journal	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
AMJ																																	1
AMR																																	1
JMS																																	1
MS																																	1
JBV		1		2	1																												28
SEJ																																	1
JSBM																																	7
ETP																																	3
TEC																																	21
JTT																																	13
ERD																																	17
SBE																																	16
RP																																	12
Total																																	122

2015). Programs designed to support R&D in emergent technology industries facilitate the emergence of entrepreneurial ventures in those same industries as the examples of nanotechnology in the US (Woolley and Rottner, 2008) and biotechnology in Taiwan (Hsu et al., 2005) show.

Studies also find that policies disproportionately impact a rare type of startup characterized by its rapid growth (i.e. gazelles), technology focus, and intellectual property endowments leaving the vast majority of other startups unaffected (Brown and Mason, 2014). Hall et al. (2012) found that policies addressing both economic and social factors appear to foster more productive and sustainable entrepreneurial outcomes even if it reduces the rate of economic growth.

Finally, many studies focus on other aspects of governmental ES, such as analyzing country or regional policy instruments to support technology based entrepreneurship (Delapierre et al., 1998; Dodgson and Rothwell, 1988; Dohse, 2000; Tyson et al., 1994), and comparing countries and regional practices (Ahl and Nelson, 2015a; Cowling, 1998; Turok, 1997).

4.2. Entrepreneurship centers and programs

4.2.1. Small business development centers

Small business development centers (SBDC) exist to support small businesses and pre-venture entrepreneurs. Hosted by universities or regional development agencies and funded by governments, SBDCs provide free consultation to write business plans, access capital, or receive general management assistance. The majority of studies found in this category date to the 1990s and are based on the work of Chrisman and colleagues (Chrisman, 1989, 1999; Chrisman et al., 1990, 1987; Chrisman and Katrishen, 1994).

Most studies cite prior literature on this specific topic and no theoretical contributions were found. The overwhelming majority of studies investigated business training and learning as the main type of support provided by SBDCs.

Two studies investigated the impact of SBDCs on firm performance and conclude that supported firms generate tax returns that may exceed the investment in less than three years (Chrisman et al., 1987; Chrisman and Katrishen, 1994). Aspiring entrepreneurs who receive support are more likely to open a business than those who receive help from other sources (Chrisman, 1999). Larger scale studies point to an excessive focus of SBDCs in short-term and to the fact that often these are financially unsustainable (Bateman, 2000).

Studies focusing on the internal mechanisms of SBDCs show that male and female entrepreneurs report similar assistance needs when aspiring to start a business (Chrisman et al., 1990); however, those results do not hold true for minority entrepreneurs (Jones and Tullous, 2002). SBDC-supported entrepreneurs also underestimate the amount of legal support needed to start a business (Brown et al., 1988) and value strategic assistance over help with administrative or operational issues (Chrisman, 1989). Finally, the only study that focuses on technology-based ES reports how a governmental agency (NASA) positively impacted the innovation output of supported small businesses (Becerra-Fernandez et al., 2000).

4.2.2. Entrepreneurship programs

Entrepreneurship programs include programmatic expenditures that assist entrepreneurs in developing a business (McMullan et al., 2002). We found examples of programs designed to build regional networks for both technology-based ES (Major and Cordey-Hayes, 2000) and general ES (Jayawarna et al., 2011), promote technology transfer (Theodorakopoulos et al., 2012) or offer loan guarantees (Riding and Haines Jr., 2001).

No theoretical articles were found in this category. Many studies merely describe a particular instance of a support program in a country or region (Gibb and Haas, 1996; Ladzani and Van Vuuren, 2002; W. Martin et al., 2006; Obeng and Blundel, 2013; Skuras et al., 2000;

Thakur, 1999) with only one focusing specifically on technology-based ES (Masten and Kandoo, 2000). However, some studies discuss programmatic designs to better address the challenges of an entrepreneur's competitive environment (Bradford, 2007; Kourilsky and Walstad, 1998), university industry collaboration to stimulate technology-based firms (Klofsten and Jones-Evans, 1996), and help entrepreneurs advance through initial startup stages (Gorman and McCarthy, 2006).

ES programs overwhelmingly focus on providing business training and learning as the main type of support. This is nevertheless diverse: we found examples of business training through state-funded small business advisors (Lambrecht and Pirnay, 2005; Mole and Keogh, 2009), general ES to minorities (Benson et al., 2011; Ram and Smallbone, 2003) or gender specific support (Pernilla, 1997). One article discusses the implication of providing support programs online (Evans and Volery, 2001).

The lack of a common theoretical background investigating this source of support may result in inconclusive findings. For instance, Sternberg (2014) found that attributes of the environment affect firm growth, sales, and profit more strongly than actual assistance provided through a governmental program to support technology-based university spin-off companies. This suggests that adverse attributes of the environment overpower any benefits provided through ES programs. However, studies do show a positive association between publicly funded business advisory services and sales growth (Cumming and Fischer, 2012; Solomon et al., 2013) and survival (Rotger et al., 2012; Solomon et al., 2013). Other results show that support programs encourage people to pursue business ownership (S. C. Parker and Belghitar, 2006).

Finally, the practical implications found are highly idiosyncratic (e.g. Ram and Smallbone, 2003; Riding and Haines Jr., 2001), prescribing more and better support (e.g. Jayawarna et al., 2011; Qian and Haynes, 2013; Thakur, 1999), or calling for adapting programs to entrepreneurs' needs (e.g. Gorman and McCarthy, 2006; Skuras et al., 2000; Sternberg, 2014).

4.3. Environment

This category includes studies which do not refer explicitly to a support source but rather conceptualize ES as a mixture of institutions, structural factors, and regional conditions (Hanlon and Saunders, 2007). Empirically, there is no common method or datasets to study how the environment supports entrepreneurship. Studies opt for a partial operationalization of the environment to investigate specific networks and its impact on resource acquisition (Meyskens et al., 2010), innovation processes (Vuola and Hameri, 2006), technology transfer (Laranja, 2009), localized technology commercialization (Wonglimpiyarat, 2010), or entrepreneurs' motivations (Dubini, 1989).

We learn that regional socioeconomic conditions have an indirect impact on individuals' intentions to start a business (Kibler, 2013) and that entrepreneurial experience has a stronger effect on business start-up processes than the environment (Rotefoss and Kolvereid, 2005). Further, studies in developed countries (Hawkins, 1993; Suzuki et al., 2002), transitioning economies (Smallbone and Welter, 2001) and developing countries (Lu and Tao, 2010; Shabbir and Di Gregorio, 1996) collectively show that entrepreneurship is better understood using a systemic approach and that support, either passive or active, is necessary but not sufficient for the emergence of new firms.

A notable contribution to research on how the environment affects entrepreneurship is that of Clarysse et al. (2014) who adopt the metaphor of ecosystem and show that business ecosystems do not necessarily emerge spontaneously from knowledge ecosystems (Clarysse et al.,

2014). While knowledge ecosystems revolve around anchor organizations that do not compete or otherwise encourage collaboration (e.g. university), business ecosystems revolve around a few established corporations and sets of small businesses that cooperate to deliver final products to customers (Clarysse et al., 2014).

4.4. Business incubators

Since their emergence in the 1950s, business incubators support tenant companies by providing space, business assistance, and access to networks in an attempt to lower chances of failure for startups (Adkins, 2002; Hackett and Dilts, 2004; Phan et al., 2005). While some articles borrow management theories to study business incubation (e.g. Aabo, 2009; Amezcua et al., 2013; Bruneel et al., 2012; Carayannis and von Zedtwitz, 2005), most remain largely atheoretical (Hackett and Dilts, 2004). We note that most articles researching business incubation focus on technology-based ES (8 out of 12).

We found one study showing that incubated firms' survival depends on the fit of resources made available and the location of the incubator (Amezcua et al., 2013). A few articles propose business incubation typologies. Carayannis and von Zedtwitz (2005) propose incubators archetypes based on competitive scope and strategic objectives (Carayannis and von Zedtwitz, 2005). Bruneel and colleagues identify three historical generations of incubators differentiated by their service portfolios (Bruneel et al., 2012). Finally, we learned that universities deploy different strategies to incubate new spin-off ventures relying on varied entrance criteria, resources available, infrastructure, and financial support schemes (Clarysse et al., 2005).

All other articles in this category are qualitative, relying on small samples, perceptual data, or localized case studies describing the internal functioning of technology-based business incubators (Adegbite, 2001; Carayannis et al., 2006; Chan and Lau, 2005; Hisrich and Smilor, 1988; Mian, 1997). Unfortunately, they tended to fail in providing inductive theoretical contributions.

Business training and learning represents the main support type associated with business incubation. Studies are fairly consistent in operationalizing business training and learning as coaching (Bergek and Norrman, 2008) and workshops (Bruneel et al., 2012). We also see that business incubators encourage firms and entrepreneurs to network and collaborate more than other support sources. Other articles consider physical infrastructure as essential to business incubation. This consists of providing office space and specialized facilities for research and manufacturing (Carayannis and von Zedtwitz, 2005; Clarysse et al., 2005).

4.5. Investors and financiers

4.5.1. Venture capitalists

Venture capital (VC) refers to investments made early in a firm's trajectory in exchange for company equity. VC-backed startups receive intense coaching as means of increasing growth prospects and maximizing the investor's return on investment (Hellmann and Puri, 2002). Most articles found in this category use established management or finance theories as the basis for their studies. We also observe that these articles look at financing as the only type of support where financing ranges from seed, start-up and early stage investment (e.g. Del-Palacio et al., 2010) to more substantial investments in growing startups (e.g. Baum and Silverman, 2004; Florida and Kenney, 1988). Two articles investigate state-sponsored VC (Cumming and MacIntosh, 2006; Grilli and Murtinu, 2014) including grant-based programs like the Small Business Innovation Research Program (SBIR) (Qian and Haynes, 2013).

Table 4
Coding scheme.

Variable	Operationalization
Source of support	Individual(s) or organization(s) providing support to entrepreneurs
Type of support	What is being provided to entrepreneurs
Dependent variable	Variables used as outcome
Key findings	Main findings of the study
Key theoretical implications	Main theoretical implications (if any)
Key practical implications	Main practical implications (if any)
Empirical vs. Conceptual	Empirical articles are based on data while conceptual use only theoretical concepts.
Technology focus	Articles researching entrepreneurship support with an explicit focus on technology-based new ventures
Research design	Qualitative articles use non-numerical data (for instance, case studies) while quantitative articles are based on numerical data and often make use of statistical analyses.
Literature base/Theory	Theoretical foundations used in the article. In some cases, it might be a combination of theories, several bodies of literature, or an underlying rationale not explicitly mentioned.
Type of Study	Phenomenological = Articles based on phenomenon, mostly descriptive results Referring = Literature base identified in the articles without further elaboration Testing = Articles testing existing theories Generating = Articles generating or contributing significantly to theory development
Sample	Sample on which the study is based, if empirical.

Table 5
Sources and types of support.

Source of support	Types of support Business Training and Learning	Environmental Context	Financing	Networking	Physical Infrastructure	Policy Discourse	Technology Transfer	Total	Total (%)
Government	1	1	2	2	1	22	2	31	25.4%
Entrepreneurship centers and programs	28		3	1		1		33	27.0%
Investors and Financiers			16					16	13.1%
Environment	2	9	1	1		3		16	13.1%
Business incubators	12							12	9.8%
University	1				1	2	6	10	8.2%
Science Park	4							4	3.3%
Total	48	10	22	4	2	28	8	122	100.0%
Total (%)	39.3%	8.2%	18.0%	3.3%	1.6%	23.0%	6.6%	100.0%	

Empirical results consistently show that VC-backed technology-based firms are more likely to undertake an IPO (Hsu, 2006), experience higher sales growth (Grilli and Murtinu, 2014), revenues, employment growth, and chances of survival (Baum and Silverman, 2004). These effects are contingent upon the relationship between the investor and the new venture team (Busenitz et al., 2004).

The remaining articles do not investigate specifically the impact of VC investments on start-ups. For instance, Florida & Kenney (1988) discuss three typologies of VCs who focus their investments on technology-based firms that exist across seven cities in the US. Others discuss the emergence of technology-based VCs in emerging economies (Pandey, 1998) which may only happen when governments act as financiers and actively invest in early-stage high-tech firms (Xiao, 2011). A cluster of articles is devoted to understanding the efficiency of VC funds focusing on their performance in general (Brophy and Guthner, 1988; Kleiman and Shulman, 1992) and their technology investments (Del-Palacio et al., 2010).

4.5.2. Business angels

We found two articles researching business angels, an informal source of capital for entrepreneurs. One article describes barriers faced by angel investors in the UK and concludes that tax incentives should be in place to increase business angels' investing (Mason and Harrison, 2002). The other article talks about how informal capital markets that are disproportionally located in metropolitan areas are mostly interested in investing in tech-based companies

(Avdeitchikova, 2009).

We note that, similarly to research in other sources of support, there is no solid theoretical basis in both articles. Further, both articles overlook the impacts of this kind of investment in startup performance. The implications found merely recommend policy makers to create the conditions that counter the findings, i.e., remove tax barriers for business angels (Mason and Harrison, 2002), and improve geographical distribution of informal capital (Avdeitchikova, 2009). Our findings are consistent with those of Politis (2008) who noted that our knowledge of the role business angels play in the entrepreneurial process is still very limited. No specific technology-based focus was found.

4.6. Universities

ES by universities takes place mainly through technology commercialization and a widespread multitude of programs dedicated to business support. We found nine articles discussing university based ES (Perkmann et al., 2013; Perkmann and Walsh, 2007), the majority of which discuss technology-based ES (9 out of 10)

Despite the lack of theoretical contributions, there are a few noteworthy empirical results. An historical perspective on the creation of an undisputed entrepreneurial university – Chalmers in Gothenburg, Sweden (Jacob et al., 2003) – suggests that university-based ES entails multiple levels of intervention and its success depends on targeted governmental policies as well as university based practices. Universities with technology-based spin-off policies that are highly selective and

Table 6
Sources of support and outcomes studied.

Source of support	Outcomes New venture	Survival	Performance	Efficiency of ES	Typology & Industry ES	Analysis of Impact	Economic Impact	Technology Transfer	Innovation	History	Multiple & Others	Total	Total (%)
Government	10	0	0	6	5	3	3	0	4	2	0	30	24.6%
Entrepreneurship centers and programs	4	0	6	18	3	1	1	1	0	0	3	36	29.5%
Environment	7	0	1	4	2	0	0	1	1	0	0	16	13.1%
Business incubators	1	1	1	5	3	0	0	1	0	0	0	12	9.8%
Investors and Financiers	1	1	3	5	3	0	0	0	0	1	0	14	11.5%
University	3	0	1	1	4	0	0	0	0	1	0	10	8.2%
Science Park	0	0	1	1	2	0	0	0	0	0	0	4	3.3%
Total	26	2	13	40	22	4	4	3	5	4	3	122	100.0%
Total (%)	21.31%	1.64%	10.66%	32.79%	18.03%	3.28%	3.28%	2.46%	4.10%	3.28%	2.46%	100.00%	

offer high levels of support tend to overcome a weak infrastructure and lack of entrepreneurial culture that results in more localized entrepreneurship (Degroof and Roberts, 2004). Also, we learn that spin-off firm creation and success within universities is associated with intellectual property protection and business development capabilities present in technology transfer offices (Lockett and Wright, 2005). Further, Åstebro and colleagues show that university graduates are more likely to spin off companies of superior quality in comparison to faculty. This suggests that universities should exercise caution when transforming their missions and practices to stimulate entrepreneurship and economic prosperity (Åstebro et al., 2012). These findings are consistent with earlier studies which suggested that university links may be detrimental to spin-off growth over time (Doutriaux, 1987).

The remaining studies discuss several different typologies based on: i) degree of involvement of the university (active vs. passive) (Schoenecker et al., 1989); ii) planned vs. spontaneous (Steffensen et al., 2000); iii) use of surrogate entrepreneurs (Franklin et al., 2001); and iv) overall university strategy (Lockett et al., 2003). Finally, one study discussed the positive impact of an early example of university ES (McMullan et al., 1986).

4.7. Science parks

Science parks are managed property-based organizations focused on supporting businesses through knowledge intensification and resource sharing (Massey et al., 1992; Phan et al., 2005). All articles found discuss technology-based ES but only one investigates explicitly technology transfer (Löfsten and Lindelöf, 2002); the remainder list business training and learning as the main type of support offered. We find this somewhat surprising given that science parks are established to concentrate research organizations and innovative firms (Amirahmadi and Saff, 1993) under the assumption that this geographical proximity would facilitate technology transfer and knowledge spillovers.

The literature on science parks lacks theoretical contributions and thinly discusses prior studies in science parks or similar organizations such as business incubators. In fact, one article merely lists a new (at the time of its publication) online tool available for park residents (Durão et al., 2005).

Empirical findings confirm that firms in science parks are more likely to be linked to a local university than off-park firms (Löfsten and Lindelöf, 2002). This is not surprising given the close association between most science parks and universities. More importantly perhaps is that residing firms perform better in sales and employment than off-park firms (Löfsten and Lindelöf, 2003). Finally, we found one study comparing American and Russian science park practices (Bruton, 1998).

5. Research agenda

In this section, we outline several areas of future research based on our review of the literature and the main gaps exposed. We propose that ES research should develop along four main dimensions to gradually improve the theoretical and practical understanding of the many support initiatives already put in place. First, ES studies should follow more closely the contemporaneous discussion regarding the heterogeneity of entrepreneurship (Welter et al., 2017) and the rationale of interventions in the entrepreneurship component in the economy (Shane, 2008, 2009). This can help calibrate the expectations for ES initiatives and outcomes as well as lead policy makers and ES managers toward strategies that tailor their interventions and leverage local conditions. Second, we recommend a more generalized use of management and entrepreneurship theories to the scholarly inquiry of ES; as an example, we discuss the nascent field of organizational sponsorship, the promising entrepreneurial strategic group literature, and the well-established innovation systems framework. Third, we argue that better

Table 7
Research approach and type of study.

Source of support	Research design					Type of Study				
	Empirical	Conceptual	Qualitative	Quantitative	Mixed	Phenomenological	Referencing	Testing	Generating	Technology focus
Government	28	3	18	9	1	13	7	7	4	14
Entrepreneurship centers and programs	33	0	12	18	3	2	17	12	2	6
Investors and Financiers	16	0	2	13	1	1	4	11	0	8
Environment	14	2	5	8	1	2	4	8	2	3
Business incubators	12	0	9	1	2	2	3	3	4	8
University	10	0	4	5	1	0	8	1	1	9
Science Park	4	0	2	2	0	0	2	2	0	4
Total	117	5	52	56	9	20	45	44	13	
Total (%)	95.9%	4.1%	42.6%	45.9%	7.4%	16.4%	36.9%	36.1%	10.7%	

research designs and methodologies are crucial for a better understanding of the ES phenomena and offer a few ways forward. Lastly, we offer an integrative framework consolidating several domains from whence entrepreneurs receive supported.

5.1. Types of ES: from technology-based to specialized ES

ES initiatives receive vigorous support from governments due to the widespread evidence that entrepreneurship is the engine behind economic prosperity. Theoretical frameworks such as the triple-helix model of innovation captured the interest of policy makers worldwide who directed efforts to streamline the links between university, industry, and government (Etzkowitz, 2002). The assumption of an 'entrepreneurial university' envisioning Triple-Helix thinking views entrepreneurship as a general concern across all disciplines, integrated at multiple levels of education and research. For example, popular ES initiatives such as university science parks or business incubators were established initially aiming at technology transfer and commercialization. Unsurprisingly, we find that nearly all the studies about these ES initiatives focus on technology-based ES, that is, discuss the impacts of ES on technology-based startups.

The distinction between technology-based ES and general ES found in our review is representative of a broader issue: reflecting the diversity of entrepreneurship (Welter et al., 2017). Indeed, there is compelling evidence that technology-based startups contribute disproportionately to economic growth and, therefore, are more often the target of ES initiatives ranging from governmental policy to business incubators. However, our review shows that tailoring ES to technology based firms also narrows the population of affected startups (R. Brown and Mason, 2014b) and, consequentially, diminishes the net potential economic impact.

Embracing the diversity of entrepreneurship (Welter et al., 2017) is a way forward to further our understanding of the phenomena of ES and its outcomes. Current ES research largely overlooks the alignment (or lack thereof) between each ES initiative and its outcomes; for instance, nearly half of the studies surveyed are phenomenological or merely refer to prior literature related to the ES initiative being investigated. The diversity of entrepreneurship is mirrored in the universe of ES initiatives. We have witnessed in more recent years the emergence of ES created to address specific contemporary challenges of many different kinds of entrepreneurs: for instance, refugee entrepreneurs (Meister and Mauer, 2019), women entrepreneurs (JPMorgan Chase and Co. and ICIC, 2016), or senior entrepreneurs (Isele and Rogoff, 2014).

Future researchers should consider more closely the scope of the ES initiative under scrutiny as a means to better understand its

mechanisms and outcomes. Technology-based ES in the form of technology transfer or science parks may be effective in spurring economic growth. However, more specialized ES initiatives targeting different populations of entrepreneurs or having a different intended outcome (e.g. developing entrepreneurial skills) may end up yielding a similar or even greater impact on the overall regional economic prosperity. Prior researchers have paved the way for aligning mission and outcomes when studying business incubators (Bergek and Norrman, 2008); similarly, general principles of ES have been applied to study entrepreneurship support initiatives in non-technology sectors (Rotger et al., 2012).

5.2. Applying existing theoretical frameworks to entrepreneurship support

Impactful research requires inspiration and motivation from novel and clear theoretical insights. While noteworthy, most of the papers included in this review were motivated and inspired by practical considerations often overlooking the use of theoretical frameworks. Rather than prescribing the development of new theories to study ES, we take inspiration in the few conceptual articles we found in our review and heed scholars to creatively build on theoretical themes developed in the ES literature and infuse it with robust theoretical arguments from traditional management theory.

One recent noteworthy development of such a case is the theory of organizational sponsorship first proposed by Flynn (1993). Organizational sponsorship essentially refers to similar efforts to boost entrepreneurship and economic development by offering firms resources that either buffer them from the competitive environment or help them network and find bridges to resources that will enable their development (Flynn, 1993). Flynn (1993) explained the concept of organizational sponsorship and offered two competing theoretical lenses from which to further build theory and explain outcomes from these forms of ES. These included population ecology and resource dependency; however, until recently few other scholars in this field had taken note of this.

Recently, in the domain of business incubation as a form of ES, two high level publications have emerged that build on the theme of organizational sponsorship (Amezcu et al., 2013; Dutt et al., 2015). Amezcu et al. (2013) take Flynn's original insights and apply them fully to the practice of incubation. They blend population ecology and resource dependence theory to examine the outcomes of incubators' direct support strategies and interactions with the local environment. Similarly, Dutt et al. (2016) blend organizational sponsorship theory with institutional logics to understand how ES entities (i.e. business incubators) fill niches or gaps in institutions in emerging markets. Further, Flynn's work (1993) has also been applied to sponsorship of

Table 8
Types of support, outcomes, learned lessons and implications.

Source of support	Main types of support	Most studied outcomes	What we learned	Implications
Government	Policy discourse	New venture	High impact entrepreneurship depends more on knowledge spillover and capital availability than on the type of regulatory environment	Capital markets and conditions conducive to knowledge spillovers should be in place
Entrepreneurship centers and programs	Business training and learning	Efficiency of support	Policies are designed to address historical deficiencies, implement global practices, or accelerate a country's convergence.	Need to craft policies adequate to regional conditions and attributes of the startup population
		Efficiency of support	Entrepreneurship support programs include many different services designed to achieve different outcomes	Lack of conceptual clarity and defined evaluation of outcomes
		Performance	Effects on growth, sales and survival are depend on firm size, nature of training, and age of the entrepreneur	Business training and learning must be customized to each entrepreneur and startup
Investors and financiers	Financing	Performance	VC backed firms perform better, have higher chances of survival, and cooperate more often with other firms.	No implications found
		Efficiency of support	Informal investments follow geographically new business creation	Policies should create incentives and reduce barriers to angel investment
Environment	Environmental context, Policy discourse	New venture	Entrepreneur's human capital predicts better nascent entrepreneurs than environmental conditions.	Policies should be tailored local conditions. Entrepreneurs should understand the constraints they may face in each ecosystem
		Efficiency of support	Intangible resources such as role models and leadership are important components of the ecosystem and represent a significant part support received	Entrepreneurs should seek non-specific support
Business incubators	Business training and learning, Physical infrastructure	Efficiency of support	Selection criteria, business training and learning, and funding streams impact BIs outcomes	No implications found
		Typologies of support	Historical generations, business training and learning, and geographical scope create different incubation models	Selection criteria impact tenant population.
Universities	Technology Transfer	Typology of support	Universities have several mechanisms to transfer technology ranging from business development assistance to research parks. Network size is identified as an important factor.	Universities interested in spinning-out companies should developed their external networks.
		New venture	Spin-off creation depends on each university's business development capabilities. Graduate students are more likely to create firms than faculty.	Professionalization of TTOs is determinant for spinning-out companies. High selectivity and support towards graduate students increase number of spin-offs.
Science Parks	Business training and learning	Typology of support	Low selectivity leads to small businesses.	No implications found
		Performance	SPs have different graduation criteria and strategies to manage the innovation process among its residents.	Need for inclusion of science parks in regional policy
			On-park firms perform better	

incumbent firms, as in the case of the French film industry where the state provides direct public subsidies to studios which appear to distort their competitive behavior and market performance (Jourdan and Kivleniece, 2017).

We suggest that scholars in this field begin to explore other abandoned efforts by earlier literature to bring these themes into the entrepreneurship literature. One notable example includes that of entrepreneurship strategic groups. The literature on strategic groups had a strong presence in the 1990s but it identified strategy in broad terms (DeSarbo and Grewal, 2008; Mas-Ruiz and Ruiz-Moreno, 2011; McGahan and Porter, 1997; Porter, 1979) that excludes many of the strategies of firm formation seen in the entrepreneurial support literature. Perhaps looking closely at entrepreneurial strategic groups, which are groups of newly founded firms following a similar founding strategy in the same industry and geography, we can begin to see how strategy formation at a micro-level fails or succeeds. From this literature review, it is clear that entrepreneurs elect different strategies to establish new firms and getting a leg up on their competition. The sources of support they seek, and the types of support they enjoy, are qualitatively different in their strategic value and we ought to understand the consequences of these choices. Additionally, this kind of research can help ES scholars to untangle the benefits from potential dangers of other proposed start-up strategies, that have yet to be empirically validated, such as the lean-startup process. In the practice of ES, there is a plethora of programs, methods, and institutions competing to break into the field for the best in class solution to the challenges faced by start-ups. We encourage scholars to study these claims objectively and rigorously in order to ensure that entrepreneurs are not sold broken dreams. In addition, stronger evidence of how these programs perform will prevent the waste of limited resources for ES on ineffective programs, particularly those brought to marginalized communities and offered as a panacea (Collins, 2003; Ram and Smallbone, 2003).

Finally, scholarship in the field of ES can make use of established frameworks in other related fields to further our understanding of the phenomenon. For instance, innovation ecosystems is a popular framework to study innovation and entrepreneurship performance on a particular sector of activity (Nambisan and Baron, 2013; Zahra and Nambisan, 2011). Similarly, national and regional systems of innovations have been extensively used to compare entrepreneurship levels in a given geographical region (Kwon and Motohashi, 2017; Surie, 2017).

5.3. New methods and research design

Improvements in methods and empirical design can make major contributions in this field. Our review reveals that, even after three decades of empirical studies, a significant part of research has not gone much further beyond descriptive and taxonomical studies. Ideally, studies would employ comparison and control groups that examine and monitor longitudinally otherwise similar nascent entrepreneurial activities that do not receive specific treatments or forms of support. In the fields of public health, education, and economics, these advanced research designs are common and often lead to highly informative conclusions. For example, the use of randomized control trials and replications in public health research generates the strongest results to make causal inferences that reduce omitted variable biases (Kelsey et al., 2016). This is because unknown biases are randomly distributed across treatment and control groups; thus, making the groups qualitatively similar (Shadish et al., 2002). When randomized control trials are infeasible, then propensity score matching is a technique often used to study the impact of policies and programs in education (Elsayed, 2016). Propensity score matching bypasses random assignment by matching treated subjects with an untreated control

subject based on observables and assumes that unobservable differences between treated and untreated groups do not exist. Additionally, propensity score matching is considered less susceptible to misspecification biases because it does not impose restrictions on the functional form of the dependent variable equation (Elsayed, 2016). Finally, in the field of economics panel data analysis has increasingly grown due to more access to these difficult to assemble datasets (Neumark et al., 2014). In addition, these kinds of data allow for more accurate inference of parameters due to their large samples, enable design and testing of complex human behaviors, and simplify computational and statistical inference (Hsiao, 2007).

With few exceptions, longitudinal studies are rare in this field (see for instance Amezcua et al., 2013) as well as studies using control groups (see for instance Löfsten and Lindelöf, 2002; Rotger et al., 2012). Further, unlike many entrepreneurship studies where entire populations of emerging industries are observed, the empirical work in this field is fragmented, based on small samples, and not generalizable. By avoiding one-time measures of activities and collecting comprehensive data on ES programs, studies will increase in rigor and relevance.

We note this suggestion with caution, given the unfortunate demands of contemporary scholarly production. At most universities, these require consistent significant output over a short tenure evaluation period (Honig et al., 2014). In general, the academic system fails to support long-term research that would help illuminate the relative contributions of entrepreneurial support mechanisms. This suggests an important role for foundations and government research funding to encourage long-term research and evaluation.

Additionally, scholars should collaborate more strongly with the local, regional, and national promoters of ES programs. Unfortunately, while some ES sources are generously resourced, systematic monitoring and evaluation procedures are mostly absent. Recently, we have seen efforts by the US-based International Business Innovation Association (InBIA) – formerly known as the National Business Incubation Association – to encourage systematic collection of annual data by all of its members. This effort seems similar to that supported by the Association of University Technology Managers (AUTM), which annually collects data on efforts by its members to commercialize research. Stronger collaborations between scholars and associations of ES entities will likely improve the quality and timeliness of data on these programs. Further, collaborations may reduce the biases that arise when the sponsors and providers of these programs produce their own research (Bearse, 1998; Sherman, 1998). Often such studies are subjective and lend themselves towards demonstrating strong performance as opposed to testing practices so that they highlight and address weaknesses in their programs.

5.4. Domains and context of entrepreneurship support

Following recent advancements in entrepreneurship research (Autio et al., 2014; Garud et al., 2014; Welter, 2011), studies on ES should be contextualized. Our review reveals most research considers sources and types of ES isolated from its context thus biasing any analysis of outcomes. Who is being supported, for what type of activity, and under what conditions are critical factors in developing wide-ranging theory.

ES became an umbrella term used to describe a multitude of efforts ranging from governmental regulatory and legal frameworks to venture capitalist investments. As ES proliferated, scholarly research sought to explain why and how particular sources and types of support affect startups, and steer the entrepreneurial process. However, by narrowing down the analyses, research siloes emerged, which in turn give way to

non-generalizable results with little or no practical application. For instance, we found studies about the effects of governmental innovation grants (Söderblom et al., 2015) or the impact of infrastructure (Fairlie, 2006) that do consider the existence of other sources of ES. At the same time, these isolated streams of research obscure important results given the immediate association to one particular source or type of support rather than overall implications to the field of ES. For instance, Bøllingtoft's and Ulhøi's (2005) valuable findings about how incubators can help entrepreneurs to develop social capital did not show up in our sample since the authors do not represent their research as ES. By narrowing down research domains to one type of ES, scholars fail to recognize how each of these sources of support fits into a broader enterprise of supporting entrepreneurs through various efforts, how they fit into the general schema of activity. To help focus future scholarship, we propose that ES manifests itself in three domains: institutional, organizational, and managerial.

Sources of support in the institutional domain shape the environmental conditions that affect startup development. This domain shows renewed interest in the past years with the publication of a significant number of articles discussing the importance of institutional factors for entrepreneurship as the harbinger of economic prosperity (Aparicio et al., 2016; Bjørnskov and Foss, 2016; Bosma et al., 2018; Urbano et al., 2019). Governmental policymaking affecting changes in regulations, fiscal or legal frameworks are examples of this kind of support (Price & Siegel, forthcoming). While there are clear examples of governmental policies dedicated to startups – for instance in the US (Gilbert et al., 2004) – we also found evidence of policies that affect whole industries regardless of company age (Aoyama, 1999; Mowery, 2011). The duration of this source of support tends to be long term, indirect, and its effects observable after decades.

The organizational domain offers unidirectional ES from one organizational sponsor to a startup (Flynn, 1993) judiciously selected. For instance, business incubators actively curate the population of supported startups (Aerts et al., 2007; Bergek and Norrman, 2008) and VCs make investment decisions according to certain entrepreneurial team's attributes (Chen et al., 2009). The duration of organizational support is limited from a few years in the case of incubators to longer timeframes depending on investment conditions, in the case of VCs. The intervention can be active, like in the case of more recent models of business incubation (Bruneel et al., 2012), or rather passive like in the case of science parks (Phan et al., 2005).

Managerial sources of support directly assist entrepreneurs. Intended to guide aspiring entrepreneurs to enter business ownership (Chrisman et al., 2005) by accelerating their learning curve, these sources of support have different selection practices. Some support programs are designed to help a specific population of aspiring entrepreneurs (Benson et al., 2011; Pernilla, 1997; Ram and Smallbone, 2003) while others rely on each entrepreneur's desire to seek advice (Cumming and Fischer, 2012; Lambrecht and Pirnay, 2005). The duration of managerial sources of support is short and, in some cases, incidental and it is delivered actively often through

one-on-one consultation.

Regardless of whether scholars study ES at the institutional, organizational, or managerial levels, we also advise towards careful consideration and discussion of context. Past research fails to substantiate how different environments may influence the assessment of outcomes from supporters of entrepreneurship. For instance, while Sternberg (2014) concludes that business training and learning, and physical infrastructure do not influence the spin-off creation rate in Germany, American PSED data reveals that nascent entrepreneurship is amplified by similar programs in the US (S. C. Parker and Belghitar, 2006). There are many reasons why context may lead to divergent outcomes when studying similar support programs. However, these nuanced differences in performance should be tackled directly, compared and discussed in order to enhance theoretical developments.

6. Conclusion

This review of the research on ES provides an important catalogue of existing research, highlighting weaknesses, and opportunities for future scholarship. Despite considerable enthusiasm in the public policy sphere, our review clearly demonstrates that research in the field provides only limited and highly idiosyncratic findings designed to help general and technology-based entrepreneurs to effectively succeed. Studies rarely utilize control populations and are based on weak theoretical backgrounds. They fail to incorporate state of the art methods and are typically cross sectional or of a case study nature. Advancing the field of ES requires stronger empirical results and robust theoretical developments. Identifying practices that enhance and expand entrepreneurial growth necessitates systematic longitudinal study, comprehensive measurement techniques, and clear and succinct compartmentalization of the various activities delivered, as well as their consequences.

Having conducted this comprehensive review, we regret to conclude that our considerable body of work addressing ES is currently failing to inform adequately policy makers, researchers, and practitioners of how best to nurture and/or support entrepreneurs. In short, ES research fails to deliver what it promises. Given the increasing public investment in ES worldwide this is a very worrisome conclusion, particularly when efforts are focusing exclusively on technology-based ES which often involve larger investments and hold a greater promise of economic impact. At what point will public policy advocates insist on accountability? When they do so, what will be the contribution of the scholarly field?

We hope that this added transparency encourages future entrepreneurship scholars to focus on measurable and achievable quality variations that balance theoretical development, empirical validity, and framing. While larger samples and more comprehensive data collection procedures are always desirable, sound data and rich theoretical contributions are more important. Identifying specific support mechanisms that positively impact entrepreneurial activity will only come about through systematic longitudinal and comparative research.

Appendix A

Table A.1.

Table A1
Theoretical basis, literature use, data samples and research design of empirical articles.

Authors	Literature use	Research design	Main theoretical basis	Sample
Aaboen (2009)	Ref	Qual	RBV, Business incubation, technology-based entrepreneurship	Interviews with 6 incubators in Sweden
Adegbite (2001)	Ref	Qual	Literature of business incubation	A survey is used to collect qualitative data from 7 business incubators in Nigeria.
Aernoudt (2004)	Phen	Qual	Literature of incubator evaluation, incubator model	Brief descriptive data of U.S. performance by different type of incubators
Ahl and Nelson (2015)	Ref	Qual	Foucault's theory of discourse, literature of women entrepreneurship	Annual reports of the National Women's Business Council (NWBC) from 1989 to 2012; 17 texts from the Resource Centers for Women, and the Promoting Women's Entrepreneurship in Sweden
Alshumaimri et al. (2010)	Phen	Qual	Knowledge-based view, literature of technology transfer and knowledge spillover	Not applicable
Amezcuca et al. (2013)	Test	Quant	Organizational sponsorship, RDT, organizational ecology	2100 new organizations found residing within a university incubator
Aoyama (1999)	Phen	Qual	Economic theory, traditional Marxist theory, institutional environment	Historical data of policy frameworks for small businesses in Japan and U.S., Interviews with SBA officials (didn't mention the exact number)
Arshed et al. (2014)	Test	Qual	Institutional theory, legitimacy, literature of policy formulation	Interviews with the policy makers in the local government department in London (didn't mention the number of interviews); participant observations in 32 meetings
Åstebro et al. (2012)	Ref	Mix	Literature of university spin-offs, academic entrepreneurship, technology transfer	Respondents in SESTAT surveys (U.S. Scientists and Engineers Statistical Data System) in 1995, 1997, 1999, 2003, 2006; three qualitative case studies with MIT, Halmstad University, Chalmers University of Technology
Audretsch et al. (2015)	Test	Quant	Literature of the impact of infrastructure on startup activities	1194 startups from the Mannheim Enterprise Panel
Avdeitchikova (2009)	Test	Quant	Neoclassical financial theory, post-Keynesian capital market theory, literature of informal venture capital	401 informal venture capital investors in Sweden
Bateman (2000)	Phen	Qual	SME development in transition economies, neoliberalism approach, formation of networks of business supports	Not applicable
Baum and Silverman (2004)	Test	Quant	Evolutionary model of entrepreneurship, attribution theory, human capital theory	204 biotechnology start-ups and 471 biotechnology incumbents in Canada
Becerra-Fernandez et al. (2000)	Phen	Qual	Literature of technology transfer to small business	Not applicable
Benson et al. (2011)	Test	Quant	Macroeconomic theory, microfinance theory	Annual county-level economic data of Shannon and Todd counties in South Dakota from 1980 to 2006
Berge and Norrman (2008)	Gen	Qual	Incubator model, literature of incubator assessment and performance	Observation and descriptive data of 16 Swedish business incubators
Bjørnskov and Foss (2013)	Test	Quant	Strategic entrepreneurship literature, institutional environment, total factor productivity literature	Data of 25 countries observed in the six five-year intervals from 1980 to 2005. Data are from the Compendia Research Group dataset, World Bank, and Fraser Institute's economic freedom dataset.
Bradford (2007)	Ref	Quant	Literature of economic development, entrepreneurship support policy	400 township entrepreneurs in South Africa
Brophy and Guthner (1988)	Test	Quant	Portfolio theory, financial theory, literature of venture capital funds	Data of 12 publicly traded VC firms
Brown and Mason (2014)	Ref	Mix	Literature of technology-based entrepreneurship, innovation policy	Interviews with 19 technology business firm owners; Brief description data of 7462 technology business firms in Scotland
Brown et al. (1988)	Ref	Quant	The stages of business development model, legal issues in entrepreneurship	100 clients of the legal clinic (a combination of client files and survey data)
Bruneel et al. (2012)	Test	Mix	Literature of business incubators, theory of economies of scale, theory of learning, theory of networking	Interviews with 7 BIs; quantitative data collected from 71 tenant companies receiving services from the BIs.
Bruton (1998)	Ref	Qual	Literature of incubator in US and Russia	Case study of Zelenograd Scientific and Technology Park in Russia
Busenitz et al. (2004)	Test	Quant	Agency theory, procedural justice theory	183 companies which received funding from VC in the 1987–1989 period.
Carayannis and von Zedtwitz (2005)	Gen	Qual	RBV, literature of business incubation	Not applicable
Carayannis et al. (2006)	Ref	Qual	technological learning, technology transfer, technological innovation and entrepreneurship, knowledge-based view	9 case studies in the use of business incubators or ICT (Information and Communication Technologies)
Chan and Lau (2005)	Test	Qual	The assessment framework of incubators, the structural theory, the cluster theory, the network theory, literature of technology start-ups	Interviews with 6 technology start-ups in HK Science Park
Chrisman and Katrishen (1994)	Ref	Quant	Literature of small business development, economic evaluation of small business support program	980 established business clients, and 840 pre-venture business clients of SBDC
Chrisman et al. (1987)	Ref	Quant	Literature of small business development	55 pre-venture clients of SBDC service in Georgia
Chrisman et al. (1990)	Test	Quant	Literature of gender differences in entrepreneurship	162 pre-venture entrepreneurs (clients) of SBDC
Chrisman (1989)	Test	Quant	Contingency theory of business strategy, strategic management theory	123 pre-venture entrepreneurs (clients) of SBDC service
Chrisman (1999)	Test	Quant	RBV, intention-based theory of entrepreneurial behavior, theory of start-up process	2025 nascent entrepreneurs in U.S.

(continued on next page)

Table A1 (continued)

Authors	Literature use	Research design	Main theoretical basis	Sample
Clarysse et al. (2005)	Gen	Mix	Models of spin-out activity (low-selective, supportive, incubator), technology transfer literature	7 case studies of research institutions and their spin-outs; data from 43 research institutions to validate the proposed model.
Clarysse et al. (2014)	Test	Quant	Knowledge ecosystem, business ecosystem, network theory	138 innovative start-ups in the region of Flanders in northern Belgium.
Cowling (1998)	Test	Quant	Economic theory, literature of small business finance	LGS (loan guarantee scheme) lending data over the period 1981–1992 (archival data)
Cumming and Fischer (2012)	Test	Quant	Theory of dynamic capabilities, literature of the impact of business advisory services on entrepreneurship outcomes	228 early-stage entrepreneurial firms in Canada
Cumming and MacIntosh (2006)	Test	Quant	Government sponsorship, demand and supply theory	Aggregate Canadian venture financing data from 1977 to 2001
Degroof and Roberts (2004)	Ref	Qual	Literature of academic spin-off ventures, technology-based entrepreneurship	Interviews with 47 firms, archival and secondary data collected from government sources, academic institutions in Belgium
Del-Palacio et al. (2010)	Test	Quant	Market failure theories, literature of public and private VC	735 investments made by 83 Spanish VC (data from VentureXpert)
Delapierre et al. (1998)	Phen	Qual	Literature of NTBFs in France	6 surveys of NTBFs
Dodgson and Rothwell (1988)	Phen	Qual	Literature of small firm policy, technology transfer	Description of small firm policies schemes in the UK
Dohse (2000)	Ref	Quant	Economic theory, endogenous growth theory, literature of regional innovation system	Survey of 33 German biotech firms from 17 BioRegios
Doutriaux (1987)	Ref	Quant	Literature of academic entrepreneurship, knowledge transfer	38 young firms created by academic entrepreneurs
Dubini (1989)	Test	Quant	Motivation theory, socioeconomic theory, Hofstede's culture theory	163 entrepreneurs from growing and declining regions in the north, center and south of Italy.
Durão et al. (2005)	Ref	Qual	KBV, literature of science and technology parks and business incubators, technology and innovation development	Case study of Taguspark (Lisbon, Portugal)
Evans and Volery (2001)	Ref	Qual	Literature of entrepreneurship online services, entrepreneurship education, business development	Interviews with a panel of 8 experts in relevant activities such as small business development services, consultant in learning and education policies, business counseling services, entrepreneurship education and training services.
Florida and Kenney (1988)	Ref	Mix	Typology of venture capital complexes, literature of venture capital evolving	Historical data of seven VC complexes in US
Franklin et al. (2001)	Ref	Quant	Literature of university spin-outs, academic entrepreneurship, surrogate entrepreneurship, technology transfer	57 universities which have spin-out activities in UK
Gallaher and Petrusa (2006)	Gen	Qual	Innovation model, literature of R&D in service sector	Case studies based on interview data with telecommunication, financial services, systems integration services, and RD&T (research and development testing) services industries
Gibb and Haas (1996)	Ref	Qual	strategic management perspective, literature of small business development, transition economies, model of local enterprise agency support	In-depth study of several Hungarian and UK Local Enterprise Agencies
Gilbert et al. (2004)	Phen	Qual	Market structure-performance framework, entrepreneurship policy, knowledge-based view	Historical data (archival) of entrepreneurship policies in US, Europe, and Asia
Gorman and McCarthy (2006)	Ref	Mix	Literature of small business support systems, RBV, KBV (knowledge-based view), network theory, life-cycle theory, models of business development and growth	Interviews with 30 entrepreneurs, then survey with 259 entrepreneurs in Canada
Grilli and Murtinu (2014)	Test	Quant	Literature of VC and firm growth, technology entrepreneurship	538 IVC-backed (Independent VC) firms, and 239 GVC-backed (Government-managed VC) firms (data from VICO dataset)
Hall et al. (2012)	Ref	Qual	Literature of entrepreneurship in BOP regions (Base of the Pyramid), innovation and entrepreneurship policies, institutional environment, tourism entrepreneurship	98 interviews with tourism entrepreneurs, policy makers, UN officials, NGOs, trade associations, academic and industry experts in Brazil
Hanlon and Saunders (2007)	Test	Mix	Resource-based view (RBV), network theory, social capital theory	Interviews with 48 entrepreneurs
Hawkins (1993)	Phen	Quant	Literature of new business entrepreneurship in Japan, entrepreneurship barriers	Descriptive data of Japanese small businesses
Hirsch and Smilor (1988)	Phen	Qual	Literature of business incubators, technology transfer	Brief introductions of 9 technology transfer programs in BIs (archival data)
Hsu et al. (2005)	Ref	Quant	Fuzzy theory, multiple criteria decision-making method (MCDM), literature of policy tools for the formation of new biotechnology firms (NBFs)	60 experts from biofirms and venture capitalists in Taiwan
Hsu (2006)	Test	Quant	Literature of business development and extra-financial effects of VC on start-ups, strategic alliances, cooperative commercialization strategy, network sociology	696 start-up firms funded by SBIR (Small Business Innovative Research) program
Huggins and Williams (2011)	Ref	Qual	Literature of regional policy and enterprise policy	20 interviews with key personnel from an English RDA (Regional Development Agencies) or a Devolved Administration or regional Government Offices in UK.
Jacob et al. (2003)	Ref	Qual	Human capital theory, innovation development, technology transfer	Case study of Chalmers University of Technology (Sweden)
Jayawarna et al. (2011)	Test	Quant	Feminist theory, literature of female entrepreneurship, literature of Hispanic entrepreneur	211 nascent entrepreneurs who completed the NES program
Jones and Tullous (2002)	Test	Quant		133 pre-venture entrepreneurs (clients of a regional SBDC) in U.S.

(continued on next page)

Table A1 (continued)

Authors	Literature use	Research design	Main theoretical basis	Sample
Kibler (2013)	Test	Quant	Theory of planned behavior, entrepreneurial intentions, entrepreneurial attitude, institutional environment	834 Finnish working-age individuals
Kleiman and Shulman (1992)	Test	Quant	Financial theory, literature of venture capital return	Stock price data of 14 SBICs (small business investment companies) and 12 BDCs (public traded business development corporations) during the 1980–1990 period
Klochikhin (2012)	Phen	Qual	theory of economic growth, theory of innovation policy, knowledge-based view, literature of technology transfer and technology diffusion, socioeconomic structure	Brief comparison data of major economic indicators of Russia, China, Brazil, India and USA
Klofsten and Jones-Evans (1996)	Ref	Qual	Literature of technology transfer, university-industry cooperation, technology-based businesses	Case study of CIE-SMIL cooperation (CIE: Center for Innovation and Entrepreneurship; SMIL: Small Business Development in Linköping)
Kourilsky and Walstad (1998)	Ref	Quant	Literature of entrepreneurship education, entrepreneurship knowledge and attitudes, gender differences, women entrepreneurship	Survey of 1000 males and females high school students in US
Ladzani and Van Vuuren (2002)	Ref	Qual	Literature of entrepreneurship training	3 case studies among SME service providers in South Africa
Lambrech and Pirnay (2005)	Ref	Quant	Neo-classical theory, neoAustrian theory, literature of public advisory services, literature of scientific evaluation of small business policies	200 SMEs owners in Belgium
Laranja (2009)	Phen	Quant	Evolutionist/structuralist perspective, neoclassical economic perspective, literature of technology and innovation policy, technology infrastructure system, technology transfer	Secondary and archival data reporting 9 different TI-organizations in Portugal
Lockett and Wright (2005)	Test	Quant	Literature of technology transfer, university spin-outs, dynamic capabilities, RBV	98 Universities in UK (48 Universities with full disclosure for all variables, the others partial data)
Lockett et al. (2003)	Ref	Quant	Literature of technology transfer, university spin-out strategies	Survey of technology transfer/business development officers at 57 UK universities
Löfsten and Lindelöf (2002)	Test	Quant	Literature of new technology-based firms (NTBFs), literature of science parks	265 NTBFs (on-park sample), and 300 NTBFs (off-park sample)
Löfsten and Lindelöf (2003)	Test	Quant	Literature of new technology-based firms (NTBFs), literature of science parks	273 NTBFs (new technology-based firms) in Sweden
Lu and Tao (2010)	Test	Quant	Literature of economic institutions, institutional environment	2854 respondents in 20 cities in China
Major and Cordery-Hayes (2000)	Gen	Mix	Literature of innovation and knowledge transfer, tacit knowledge, literature of SME development	Semi-structured interviews with 49 SMEs and 34 intermediaries in UK
Martin et al. (2013)	Test	Quant	Human capital theory, training-business creation model,	790 small business owners
Mason and Brown (2013)	Phen	Qual	Literature of public policy toward entrepreneurship, literature of high growth firms	20 interviews with HGFs (high growth firms) in Scotland
Mason and Harrison (2002)	Ref	Quant	Literature of business angels and informal venture capital market	84 business angels in UK
Masten and Kandoole (2000)	Ref	Qual	Literature of SME support development in emerging economies	18 institutions related to the SME support system in Malawi
McMullan et al. (1986)	Ref	Quant	Literature of new venture development programs	Interviews with 50 venture leaders
Meyskens et al. (2010)	Test	Qual	Population ecology, RBV, resource dependence theory, network theory, literature of social entrepreneurship	Interviews with 10 entities including microfinance social ventures and their corporates in New York city.
Mian (1996)	Gen	Qual	Literature of business incubation support, organizational effectiveness approach, literature of technology-based firms	4 representative UTBI cases (university technology business incubator)
Mole and Keogh (2009)	Ref	Qual	Theory of market failure, RBV, institutional theory, Literature of business advice including small firm policy, critical management consulting, and organizational development consulting	2 case studies of England and Scotland
Mowery (2011)	Phen	Qual	Literature of nanotechnology innovation, R&D policy	Not applicable
Murdock (2012)	Test	Quant	Institutional theory, literature of public policy	Public datasets including Eurostat. 95 cases from 2001–2005 in 19 European Union member countries.
Obeng and Blundel (2013)	Ref	Mix	Literature of enterprise policies, small business support	253 owner-managers in Ghana collected by survey in combination with interviews
Pandey (1998)	Phen	Qual	Literature of venture capital and venture capital development process in India	Case study of TDICI (Technology Development and Information Company of India)
Parker and Belghitar (2006)	Test	Quant	Human capital theory, social capital theory, econometric analysis, literature of nascent entrepreneurship, utility maximization theory	340 entrepreneurs from PSED dataset
Pemilla (1997)	Ref	Qual	feminist theory, neoinstitutional theory	Interviews with 10 business counselors
Qian and Haynes (2013)	Test	Quant	The knowledge spillover theory, literature of entrepreneurship policy, high technology entrepreneurship	1079 US county data on high technology entrepreneurship and numbers of SBIR grants
Ram and Smallbone (2003)	Ref	Qual	Literature of ethnic minority businesses, literature of BMEB (black and minority ethnic businesses), literature of business policy	Interviews with 53 key informants of Business Links (the agencies contracted to deliver small business services in England, still active)
Riding and Haines Jr. (2001)	Ref	Quant	Economic theory, literature of SMEs and loan guarantee schemes	Evaluation data of the SBLA (Small Business Loans Act) program

(continued on next page)

Table A1 (continued)

Authors	Literature use	Research design	Main theoretical basis	Sample
Roteffoss and Kolvereid (2005)	Test	Quant	Human capital theory, environmental influence, entrepreneurial culture, literature of start-up process	197 nascent entrepreneurs in Norway
Rotger et al. (2012)	Test	Quant	Theory of guided preparation, dynamic capabilities perspective	3169 Individuals receiving aid from the NiN program between 2002–2006
Rothwell (1985)	Phen	Qual	Literature of venture finance, literature of small firm development, small firm innovation, venture capital policy scheme	Description of innovation share by size of firm in the UK from 1945 to 1983
Schoenecker et al. (1989)	Ref	Qual	Literature of technology transfer and diffusion, the NSF innovation process model, technology transfer mode model proposed by Janis et al.	Interviews with 4 Midwestern land-grant universities in U.S.
Shabbir and Di Gregorio (1996)	Ref	Qual	Symbolic interactionist approach, women entrepreneurship literature	Interviews with 33 women entrepreneurs in Pakistan.
Skuras et al. (2000)	Ref	Quant	Literature of business development schemes	76 small rural businesses in lagging areas of insular Greece
Smallbone and Welter (2001)	Ref	Qual	Literature of SME development, entrepreneurship in transition economies, entrepreneur characteristics	1219 interviews with managers or owners of SMEs in Poland, Ukraine, Moldova, and Belarus
Solomon et al. (2013)	Test	Quant	Theory of outsider assistance as a knowledge resource, upper echelon theory	30,746 businesses in 16 different industry categories in U.S.
Steffensen et al. (2000)	Gen	Qual	Technology knowledge transfer theory, spin-off literature	Case studies of 6 spin-offs from the 55 research centers at the University of New Mexico
Stenholm et al. (2013)	Test	Quant	Institutional theory	Data of 63 countries from GEM (Global entrepreneurship monitor), World Bank, EDBI (the Doing Business Report), GCI (Global competitiveness index) and IEF (Index of economic freedom)
Sternberg (2014)	Test	Quant	Literature of university spin-offs, government policies, institutional environment	143 cases from the Junge Innovatoren support program; 136 cases from the Program to Financially support university spin-offs program)
Suzuki et al. (2002)	Test	Quant	Ecology theory, RBV, strategic management theory, literature of entrepreneurial motivation, entrepreneurial management, business growth	396 Japanese firms and 188 Silicon Valley firms
Švarc (2006)	Phen	Qual	Theory of social capital, path-dependent theory of semi-modernism, institutional theory(socio-political context)	Data of R&D and innovation indicators for EU-15 countries, USA, Finland, Nordic countries, Slovenia, Poland, Hungary and Croatia in 2001
Tassey (2010)	Phen	Qual	Innovation policy models, economic growth, technology-based economy, manufacturing R&D	Descriptive data of U.S. manufacturing industry
Thakur (1999)	Gen	Qual	Economic theory, theory of firm growth, the stage model of business development, theory of social change, social role model and value system, small enterprise management, social transformation perspective	7 case studies in North India
Theodorakopoulos et al. (2012)	Test	Qual	Situated learning theory, Communities of practice (CoPs) theory, literature of technology transfer	397 interviews with 2 regional government agencies, 44 fish farmers, and 35 coffee producers in the Cauca region of Colombia
Turok (1997)	Ref	Quant	Literature of business development, European Structural Funds, regional policy	281 business development project applications between 1988 and 1993 in Central Scotland, among which 32 projects were selected to explore in greater depth by conducting interviews with project managers; telephone survey with 200 businesses
Tyson et al. (1994)	Phen	Qual	Literature of entrepreneurship framework, entrepreneurship development in Eastern Europe, literature of restructuring of the East European economies	Descriptive data of entrepreneurship in Eastern Europe
Vekstein (1999)	Phen	Qual	Literature of technological learning, technology transfer, technology policy, organizational network, national innovation system, institutional theory	Historical data of the Israeli defense industry, description data of R&D network within the MAGNET program
Vuola and Hameri (2006)	Ref	Qual	Literature of innovation process	9 case studies on CERN-industry cooperation projects
Wonglimpiyarat (2010)	Ref	Qual	Literature of VC financing, technology commercialization, business incubators, economic clusters, knowledge spillover	2 case studies (NSTDA: National Science and Technology Development Agency and NIA: National Innovation Agency in Thailand
Woolley and Rottner (2008)	Test	Quant	Resource dependence theory, organizational ecology theory, innovation policy literature	Comparison data of nanotechnology entrepreneurship in 51 US states (including Washington DC)
Xiao (2011)	Ref	Qual	Literature of high-tech SMEs, entrepreneurship financing	74 interviews with high-tech SMEs and 9 interviews with bank and government officials in China

Legend:

Literature use: Gen = Generating; Test = Testing; Ref = Referencing; Phen = Phenomenological.

Research design: Qual = Qualitative; Quant = Quantitative.

References

- Aabo, L., 2009. Explaining incubators using firm analogy. *Technovation* 29 (10), 657–670. <https://doi.org/10.1016/j.technovation.2009.04.007>.
- Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., Overy, P., 2016. Sustainability-oriented innovation: a systematic review. *Int. J. Manag. Rev.* 18 (2), 180–205. <https://doi.org/10.1111/ijmr.12068>.
- Adegbite, O., 2001. Business incubators and small enterprise development: the Nigerian experience. *Small Bus. Econ.* 17 (3), 157–166.
- Adkins, D., 2002. A Brief History of Business Incubation in the United States. Ohio: National Business Incubation Association, Athens.
- Aerts, K., Matthysens, P., Vandenbempt, K., 2007. Critical role and screening practices of European business incubators. *Technovation* 27 (5), 254–267. <https://doi.org/10.1016/j.technovation.2006.12.002>.
- Aernoudt, R., 2004. Incubators: Tool for Entrepreneurship? *Small Business Economics* 23 (2), 127–135. <https://doi.org/10.1023/B:SBEJ.0000027665.54173.23>.
- Ahl, H., Nelson, T., 2015a. How policy positions women entrepreneurs: a comparative analysis of state discourse in Sweden and the United States. *J. Bus. Ventur.* 30 (2), 273–291. <https://doi.org/10.1016/j.jbusvent.2014.08.002>.
- Alshumaimri, A., Aldridge, T., Audretsch, D.B., 2010. The university technology transfer revolution in Saudi Arabia. *J. Technol. Transf.* 35 (6), 585–596. <https://doi.org/10.1007/s10961-010-9176-5>.
- Amecua, A., Grimes, M.G., Bradley, S.W., Wiklund, J., 2013. Organizational sponsorship and founding environments: a contingency view on the survival of business incubated firms, 1994–2007. *Acad. Manag. J.* 56 (6), 1628–1654.
- Amirahmadi, H., Saff, G., 1993. Science parks: a critical assessment. *J. Plan. Lit.* 8 (2), 107–123.
- Aoyama, Y., 1999. Policy interventions for industrial network formation: contrasting historical underpinnings of the small business policy in Japan and the United States. *Small Bus. Econ.* 12 (3), 217–231. <https://doi.org/10.1023/A:1008060108220>.
- Aparicio, S., Urbano, D., Audretsch, D., 2016. Institutional factors, opportunity entrepreneurship and economic growth: panel data evidence. *Technol. Forecast. Soc. Change* 102, 45–61. <https://doi.org/10.1016/j.techfore.2015.04.006>.
- Arshed, N., Carter, S., Mason, C., 2014. The ineffectiveness of entrepreneurship policy: is policy formulation to blame. *Small Bus. Econ.* 43 (3), 639–659. <https://doi.org/10.1007/s11187-014-9554-8>.
- Åstebro, T., Bazzazian, N., Braguinsky, S., 2012. Startups by recent university graduates and their faculty: implications for university entrepreneurship policy. *Res. Policy* 41 (4), 663–677.
- Audretsch, D.B., Heger, D., Veith, T., 2015. Infrastructure and entrepreneurship. *Small Bus. Econ.* 44 (2), 219–230. <https://doi.org/10.1007/s11187-014-9600-6>.
- Autio, E., Kenney, M., Mustar, P., Siegel, D., Wright, M., 2014. Entrepreneurial innovation: the importance of context. *Res. Policy* 43 (7), 1097–1108. <https://doi.org/10.1016/j.respol.2014.01.015>.
- Avdeitchikova, S., 2009. False expectations: reconsidering the role of informal venture capital in closing the regional equity gap. *Entrep. Region. Dev.* 21 (2), 99–130. <https://doi.org/10.1080/08985620802025962>.
- Bateman, M., 2000. Neo-Liberalism, SME development and the role of business support centres in the transition economies. *Small Bus. Econ.* 14 (4), 275–298. <https://doi.org/10.1023/A:1008170805013>.
- Baum, J.A.C., Silverman, B.S., 2004. Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology start-ups. *J. Bus. Ventur.* 19 (3), 411–436. [https://doi.org/10.1016/S0883-9026\(03\)00038-7](https://doi.org/10.1016/S0883-9026(03)00038-7).
- Bearse, P., 1998. A question of evaluation: nBIA's impact assessment of business incubators. *Econ. Dev. Q.* 12 (4), 322–333. <https://doi.org/10.1177/0891224249801200404>.
- Becerra-Fernandez, I., Taylor, A., Buckingham, G., Kinney, F., Brown, D., Entessari, A., 2000. The NASA/Florida minority institution entrepreneurial partnership: an infrastructure to enable technology transfer to small businesses. *J. Technol. Transf.* 25 (2), 193–203.
- Benneworth, P., Ratinho, T., 2014. Reframing the role of knowledge parks and science cities in knowledge-based urban development. *Environ. Plann. C* 32 (5), 784–808. <https://doi.org/10.1068/c1266r>.
- Benson, D.A., Lies, A.K., Okunade, A.A., Wunnava, P.V., 2011. Economic impact of a private sector micro-financing scheme in South Dakota. *Small Bus. Econ.* 36 (2), 157–168.
- Bergek, A., Norrman, C., 2008. Incubator best practice: a framework. *Technovation* 28 (1–2), 20–28. <https://doi.org/10.1016/j.technovation.2007.07.008>.
- Birch, D.L., 1987. *Job Creation in America: How Our Smallest Companies Put the Most People to Work*. Free Press, New York, NY.
- Björnskov, C., Foss, N., 2013. How strategic entrepreneurship and the institutional context drive economic growth. *Strateg. Entrep. J.* 7 (1), 50–69. <https://doi.org/10.1002/sej.1148>.
- Björnskov, C., Foss, N.J., 2016. Institutions, entrepreneurship, and economic growth: what do we know and what do we still need to know. *Acad. Manag. Perspect.* 30 (3), 292–315. <https://doi.org/10.5465/amp.2015.0135>.
- Bøllingtoft, A., Ulhøi, J.P., 2005. The networked business incubator—Leveraging entrepreneurial agency. *J. Bus. Ventur.* 20 (2), 265–290. <https://doi.org/10.1016/j.jbusvent.2003.12.005>.
- Bosma, N., Content, J., Sanders, M., Stam, E., 2018. Institutions, entrepreneurship, and economic growth in Europe. *Small Bus. Econ.* 51 (2), 483–499. <https://doi.org/10.1007/s11187-018-0012-x>.
- Bradford, W.D., 2007. Distinguishing economically from legally formal firms: targeting business support to entrepreneurs in South Africa's townships. *J. Small Bus. Manag.* 45 (1), 94–115. <https://doi.org/10.1111/j.1540-627X.2007.00201.x>.
- Brophy, D.J., Guthner, M.W., 1988. Publicly traded venture capital funds: implications for institutional “fund of funds” investors. *J. Bus. Ventur.* 3 (3), 187–206.
- Brown, C.A., Colborne, C.H., McMullan, W.E., 1988. Legal issues in new venture development. *J. Bus. Ventur.* 3 (4), 273–286.
- Brown, R., Mason, C., 2014b. Inside the high-tech black box: a critique of technology entrepreneurship policy. *Technovation* 34 (12), 773–784. <https://doi.org/10.1016/j.technovation.2014.07.013>.
- Brush, C.G., Greene, P.G., Hart, M.M., 2001. From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base. *The Academy of Management Executive* 15 (1), 64–78. <https://doi.org/10.5465/AME.2001.4251394>.
- Bruneel, J., De Cock, R., 2016. Entry mode research and SMEs: a review and future research agenda. *J. Small Bus. Manag.* 54 (S1), 135–167.
- Bruneel, J., Ratinho, T., Clarysse, B., Groen, A., 2012. The evolution of business incubators: comparing demand and supply of business incubation services across different incubator generations. *Technovation* 32 (2), 110–121. <https://doi.org/10.1016/j.technovation.2011.11.003>.
- Bruton, G.D., 1998. Incubators as a small business support in Russia: contrast of university-related U.S. incubators with the Zelenograd Scientific and Technology Park. *J. Small Bus. Manag.* 36 (1), 91–94.
- Busenitz, L.W., Fiet, J.O., Moesel, D.D., 2004. Reconsidering the venture capitalists' “value added” proposition: an interorganizational learning perspective. *J. Bus. Ventur.* 19 (6), 787–807.
- Carayannis, E.G., Popescu, D., Sipp, C., Stewart, M., 2006. Technological learning for entrepreneurial development (TL4ED) in the knowledge economy (KE): case studies and lessons learned. *Technovation* 26, 419–443.
- Carayannis, E.G., von Zedtwitz, M., 2005. Architecting gloCal (global–local), real-virtual incubator networks (G-RVINS) as catalysts and accelerators of entrepreneurship in transitioning and developing economies: lessons learned and best practices from current development and business incubation practices. *Technovation* 25 (2), 95–110. [https://doi.org/10.1016/S0166-4972\(03\)00072-5](https://doi.org/10.1016/S0166-4972(03)00072-5).
- Chan, K.F., Lau, T., 2005. Assessing technology incubator programs in the science park: the good, the bad and the ugly. *Technovation* 25 (10), 1215–1228. <https://doi.org/10.1016/j.technovation.2004.03.010>.
- Chen, X.-P., Yao, X., Kotha, S., 2009. Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions. *Acad. Manag. J.* 52 (1), 199–214. <https://doi.org/10.5465/AMJ.2009.36462018>.
- Chiang, J.-T., 1992. Technological spin-off: its mechanisms and national contexts. *Technol. Forecast. Soc. Change* 41 (4), 365–390. [https://doi.org/10.1016/0040-1625\(92\)90044-T](https://doi.org/10.1016/0040-1625(92)90044-T).
- Chrisman, J.J., 1989. Strategic, administrative, and operating assistance: the value of outside consulting to pre-venture entrepreneurs. *J. Bus. Ventur.* 4 (6), 401–418. [https://doi.org/10.1016/0883-9026\(89\)90010-4](https://doi.org/10.1016/0883-9026(89)90010-4).
- Chrisman, J.J., 1999. The influence of outsider-generated knowledge resources on venture creation. *J. Small Bus. Manag.* 37 (4), 42.
- Chrisman, J.J., Carsrud, A.L., DeCastro, J., Herron, L., 1990. A comparison of assistance needs of male and female pre-venture entrepreneurs. *J. Bus. Ventur.* 5 (4), 235–248.
- Chrisman, J.J., Hoy, F., Robinson Jr., R.B., 1987. New venture development: the costs and benefits of public sector assistance. *J. Bus. Ventur.* 2 (4), 315–328. [https://doi.org/10.1016/0883-9026\(87\)90024-3](https://doi.org/10.1016/0883-9026(87)90024-3).
- Chrisman, J.J., Katrishen, F., 1994. The economic impact of small business development center counseling activities in the United States: 1990–1991. *J. Bus. Ventur.* 9 (4), 271–280. [https://doi.org/10.1016/0883-9026\(94\)90008-6](https://doi.org/10.1016/0883-9026(94)90008-6).
- Chrisman, J.J., McMullan, W.E., Hall, J., 2005. The influence of guided preparation on the long-term performance of new ventures. *J. Bus. Ventur.* 20 (6), 769–791. <https://doi.org/10.1016/j.jbusvent.2004.10.001>.
- Claire, C., Lefebvre, V., Ronteau, S., 2019. Entrepreneurship as practice: systematic literature review of a nascent field. *Entrep. Region. Dev.* 0 (0), 1–32. <https://doi.org/10.1080/08985626.2019.1641975>.
- Clarysse, B., Wright, M., Bruneel, J., Mahajan, A., 2014. Creating value in ecosystems: crossing the chasm between knowledge and business ecosystems. *Res. Policy* 43 (7), 1164–1176. <https://doi.org/10.1016/j.respol.2014.04.014>.
- Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., Vohora, A., 2005. Spinning out new ventures: a typology of incubation strategies from European research institutions. *J. Bus. Ventur.* 20 (2), 183–216. <https://doi.org/10.1016/j.jbusvent.2003.12.004>.
- Collins, J., 2003. Cultural diversity and entrepreneurship: policy responses to immigrant entrepreneurs in Australia. *Entrep. Region. Dev.* 15 (2), 137–149. <https://doi.org/10.1080/0898562032000075168>.
- Cowling, M., 1998. Regional determinants of small firm loans under the U.K. loan guarantee scheme. *Small Bus. Econ.* 11 (2), 155–167. <https://doi.org/10.1023/A:1007956403565>.
- Cumming, D.J., Fischer, E., 2012. Publicly funded business advisory services and entrepreneurial outcomes. *Res. Policy* 41 (2), 467–481.
- Cumming, D.J., MacIntosh, J.G., 2006. Crowding out private equity: Canadian evidence. *J. Bus. Ventur.* 21 (5), 569–609. <https://doi.org/10.1016/j.jbusvent.2005.06.002>.
- Davis, S.J., Haltiwanger, J., Schuh, S., 1996. Small business and job creation: dissecting the myth and reassessing the facts. *Small Bus. Econ.* 8 (4), 297–315. <https://doi.org/10.1007/BF00393278>.
- Degroof, J.-J., Roberts, E.B., 2004. Overcoming weak entrepreneurial infrastructures for academic spin-off ventures. *J. Technol. Transf.* 29 (3–4), 327–352. <https://doi.org/10.1023/B:JOIT.0000034126.23592.23>.
- Delapierre, M., Madeuf, B., Savoy, A., 1998. NTBFs—The French case. *Res. Policy* 26 (9), 989–1003.
- Del-Palacio, I., Zhang, X.T., Sole, F., 2010. The capital gap for small technology

- companies: public venture capital to the rescue. *Small Bus. Econ.* 38 (3), 283–301. <https://doi.org/10.1007/s11187-010-9275-6>.
- DeSarbo, W.S., Grewal, R., 2008. Hybrid strategic groups. *Strategic Manag. J.* 29 (3), 293–317.
- Dodgson, M., Rothwell, R., 1988. Small firm policy in the U.K. *Technovation* 7 (3), 231–247. [https://doi.org/10.1016/0166-4972\(88\)90022-3](https://doi.org/10.1016/0166-4972(88)90022-3).
- Dohse, D., 2000. Technology policy and the regions—The case of the Bioregio contest. *Res. Policy* 29 (9), 1111–1133. [https://doi.org/10.1016/S0048-7333\(99\)00077-3](https://doi.org/10.1016/S0048-7333(99)00077-3).
- Dorasamy, M., Raman, M., Kaliannan, M., 2013. Knowledge management systems in support of disasters management: a two decade review. *Technol. Forecast. Soc. Change* 80 (9), 1834–1853. <https://doi.org/10.1016/j.techfore.2012.12.008>.
- Doutriaux, J., 1987. Growth pattern of academic entrepreneurial firms. *J. Bus. Ventur.* 2 (4), 285–297.
- Dubini, P., 1989. The influence of motivations and environment on business start-ups: some hints for public policies. *J. Bus. Ventur.* 4 (1), 11–26. [https://doi.org/10.1016/0883-9026\(89\)90031-1](https://doi.org/10.1016/0883-9026(89)90031-1).
- Durão, D., Sarmiento, M., Varela, V., Maltez, L., 2005. Virtual and real-estate science and technology parks: a case study of Taguspark. *Technovation* 25 (3), 237–244. [https://doi.org/10.1016/S0166-4972\(03\)00110-X](https://doi.org/10.1016/S0166-4972(03)00110-X).
- Dutt, N., Hawn, O., Vidal, E., Chatterji, A. K., McGahan, A. M., & Mitchell, W. (2015). How Open System Intermediaries Address Institutional Failures: The Case of Business Incubators in Emerging-Market Countries. *Academy of Management Journal*, *amj*. 2012.0463. <https://doi.org/10.5465/amj.2012.0463>.
- Ellwood, P., Grimshaw, P., & Pandza, K. (2016). Accelerating the innovation process: a systematic review and realist synthesis of the research literature. *Int. J. Manag. Rev.* Retrieved from <http://onlinelibrary.wiley.com> 10.1111/ijmr.12108/full.
- Elsayed, M.A., 2016. The impact of education tax benefits on college completion. *Econ. Educ. Rev.* 53, 16–30.
- Etzkowitz, H., 2002. Incubation of incubators: innovation as a triple helix of university-industry-government networks. *Sci. Public Policy* 29 (2), 115–128. <https://doi.org/10.3152/147154302781781056>.
- Etzkowitz, H., Leydesdorff, L., 1995. The triple helix—university-industry-government relations: a laboratory for knowledge-based development. *EASST Rev.* 14 (1), 14–19.
- Evans, D., Volery, T., 2001. Online business development services for entrepreneurs: an exploratory study. *Entrep. Region. Devel.* 13 (4), 333–350.
- Fairlie, R.W., 2006. The personal computer and entrepreneurship. *Manage. Sci.* 52 (2), 187–203. <https://doi.org/10.1287/mnsc.1050.0479>.
- Feld, B., 2012. Startup Communities: Building an Entrepreneurial Ecosystem in Your City. John Wiley & Sons, Hoboken, NJ.
- Florida, R., Kenney, M., 1988. Venture capital and high technology entrepreneurship. *J. Bus. Ventur.* 3 (4), 301–319. [https://doi.org/10.1016/0883-9026\(88\)90011-0](https://doi.org/10.1016/0883-9026(88)90011-0).
- Flynn, D.M., 1993. A critical exploration of sponsorship, infrastructure, and new organizations. *Small Business Economics* 5 (2), 129–156.
- Flynn, D.M., 1993. Sponsorship and the survival of new organizations. *J. Small Bus. Manag.* 31 (1), 51–62.
- Franklin, S.J., Wright, M., Lockett, A., 2001. Academic and surrogate entrepreneurs in university spin-out companies. *J. Technol. Transf.* 26 (1–2), 127–141.
- Fried, V.H., 2003. Defining a forum for entrepreneurship scholars. *J. Bus. Ventur.* 18 (1), 1–11.
- Gallaher, M.P., Petrusa, J.E., 2006. Innovation in the U.S. service sector. *J. Technol. Transf.* 31 (6), 611–628. <https://doi.org/10.1007/s10961-006-0018-4>.
- Garud, R., Gehman, J., Giuliani, A.P., 2014. Contextualizing entrepreneurial innovation: a narrative perspective. *Res. Policy* 43 (7), 1177–1188. <https://doi.org/10.1016/j.respol.2014.04.015>.
- Gibb, A.A., Haas, Z., 1996. Developing local support services for small business development in central and Eastern Europe—the donor challenge. *Entrep. Region. Dev.* 8 (3), 197–216.
- Gilbert, B.A., Audretsch, D.B., McDougall, P.P., 2004. The emergence of entrepreneurship policy. *Small Bus. Econ.* 22 (3–4), 313–323. <https://doi.org/10.1023/B:SBEJ.0000022235.10739.a8>.
- Goldstein, H., Drucker, J., 2006. The economic development impacts of universities on regions: do size and distance matter? The economic development impacts of universities on regions: do size and distance matter. *Econ. Dev. Q.* 20 (1), 22–43. <https://doi.org/10.1177/0891242405283387>.
- Gorman, G.G., McCarthy, S., 2006. Business development support and knowledge-based businesses. *J. Technol. Transf.* 31 (1), 131–143.
- Grégoire, D.A., Corbett, A.C., McMullen, J.S., 2011. The cognitive perspective in entrepreneurship: an agenda for future research. *J. Manag. Stud.* 48 (6), 1443–1477. <https://doi.org/10.1111/j.1467-6486.2010.00922.x>.
- Grilli, L., Murtinu, S., 2014. Government, venture capital and the growth of European high-tech entrepreneurial firms. *Res. Policy* 43 (9), 1523–1543. <https://doi.org/10.1016/j.respol.2014.04.002>.
- Gulati, R., Nohria, N., Zaheer, A., 2000. Strategic networks. *Strategic Manag. J.* 21 (3), 203–215. [https://doi.org/10.1002/\(SICI\)1097-0266\(200003\)21](https://doi.org/10.1002/(SICI)1097-0266(200003)21).
- Hackett, S.M., Dilts, D.M., 2004. A systematic review of business incubation research. *J. Technol. Transf.* 29 (1), 55–82.
- Hall, J., Matos, S., Sheehan, L., Silvestre, B., 2012. Entrepreneurship and innovation at the base of the pyramid: a recipe for inclusive growth or social exclusion. *J. Manag. Stud.* 49 (4), 785–812. <https://doi.org/10.1111/j.1467-6486.2012.01044.x>.
- Haltiwanger, J., 2015. Job creation, job destruction, and productivity growth: the role of young businesses. *Annu. Rev. Econom.* 7 (1), 341–358.
- Hanlon, D., Saunders, C., 2007. Marshaling resources to form small new ventures: toward a more holistic understanding of entrepreneurial support. *Entrep. Theory Pract.* 31 (4), 619–641.
- Hawkins, D.I., 1993. New business entrepreneurship in the Japanese economy. *J. Bus. Ventur.* 8 (2), 137–150.
- Headd, B., Kirchoff, B., 2009. The growth, decline and survival of small businesses: an exploratory study of life cycles. *J. Small Bus. Manag.* 47 (4), 531–550. <https://doi.org/10.1111/j.1540-627X.2009.00282.x>.
- Hellmann, T., Puri, M., 2002. Venture capital and the professionalization of start-up firms: empirical evidence. *J. Finance* 57 (1), 169–197.
- Hisrich, R.D., Smilor, R.W., 1988. The university and business incubation: technology transfer through entrepreneurial development. *J. Technol. Transf.* 13 (1), 14–19.
- Honig, B., Lampel, J., Siegel, D., Drnevich, P., 2014. Ethics in the production and dissemination of management research: institutional failure or individual fallibility. *J. Manag. Stud.* 51 (1), 118–142. <https://doi.org/10.1111/joms.12056>.
- Hsiao, C., 2007. Panel data analysis—Advantages and challenges. *Test* 16 (1), 1–22.
- Hsu, D.H., 2006. Venture capitalists and cooperative start-up commercialization strategy. *Manage. Sci.* 52 (2), 204–219.
- Hsu, Y.-G., Shyu, J.Z., Tzeng, G.-H., 2005. Policy tools on the formation of new biotechnology firms in Taiwan. *Technovation* 25 (3), 281–292. [https://doi.org/10.1016/S0166-4972\(03\)00078-6](https://doi.org/10.1016/S0166-4972(03)00078-6).
- Huggins, R., Williams, N., 2011. Entrepreneurship and regional competitiveness: the role and progression of policy. *Entrep. Region. Dev.* 23 (9–10), 907–932. <https://doi.org/10.1080/08985626.2011.577818>.
- Isele, E., Rogoff, E.G., 2014. Senior entrepreneurship: the new normal. *Public Policy Agin. Rep.* 24 (4), 141–147. <https://doi.org/10.1093/ppar/pru043>.
- Jacob, M., Lundqvist, M., Hellsmark, H., 2003. Entrepreneurial transformations in the Swedish University system: the case of Chalmers University of Technology. *Res Policy* 32 (9), 1555–1568.
- Jayawarna, D., Jones, O., Macpherson, A., 2011. New business creation and regional development: enhancing resource acquisition in areas of social deprivation. *Entrep. Region. Dev.* 23 (9–10), 735–761. <https://doi.org/10.1080/08985626.2010.520337>.
- Jones, K., Tullous, R., 2002. Behaviors of pre-venture entrepreneurs and perceptions of their financial needs. *J. Small Bus. Manag.* 40 (3), 233–248.
- Jourdan, J., Kivleniece, I., 2017. Too much of a good thing? The dual effect of public sponsorship on organizational performance. *Acad. Manag. J.* 60 (1), 55–77. <https://doi.org/10.5465/amj.2014.1007>.
- JPMorgan Chase & Co., & ICIC, 2016. Creating Inclusive High-Tech Incubators and Accelerators: Strategies to Increase Participation Rates of Women and Minority Entrepreneurs. Detroit, MI.
- Kuratko, D.F., 2005. The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice* 29 (5), 577–598. <https://doi.org/10.1111/j.1540-6520.2005.00099.x>.
- Kelsey, M., Layzer, C., Layzer, J., Price, C., Juras, R., Blocklin, M., Mendez, J., 2016. Replicating* cuidate!: 6-Month impact findings of a randomized controlled trial. *Am. J. Public Health* 106 (S1), S70–S77.
- Kibler, E., 2013. Formation of entrepreneurial intentions in a regional context. *Entrep. Region. Dev.* 25 (3–4), 293–323.
- Kleiman, R.T., Shulman, J.M., 1992. The risk-return attributes of publicly traded venture capital: implications for investors and public policy. *J. Bus. Ventur.* 7 (3), 195–208.
- Klochikhin, E.A., 2012. Russia's innovation policy: stubborn path-dependencies and new approaches. *Res. Policy* 41 (9), 1620–1630. <https://doi.org/10.1016/j.respol.2012.03.023>.
- Klofsten, M., Jones-Evans, D., 1996. Stimulation of technology-based small firms—A case study of university-industry cooperation. *Technovation* 16 (4), 187–213.
- Klotz, A.C., Hmieleski, K.M., Bradley, B.H., Busenitz, L.W., 2014. New venture teams a review of the literature and roadmap for future research. *J. Manage.* 40 (1), 226–255. <https://doi.org/10.1177/0149206313493325>.
- Kourilsky, M.L., Walstad, W.B., 1998. Entrepreneurship and female youth: knowledge, attitudes, gender differences, and educational practices. *J. Bus. Ventur.* 13 (1), 77–88. [https://doi.org/10.1016/S0883-9026\(97\)00032-3](https://doi.org/10.1016/S0883-9026(97)00032-3).
- Kwon, S., Motohashi, K., 2017. How institutional arrangements in the National Innovation System affect industrial competitiveness: a study of Japan and the U.S. with multiagent simulation. *Technol. Forecast. Soc. Change* 115 (Supplement C), 221–235. <https://doi.org/10.1016/j.techfore.2016.10.005>.
- Ladzani, W.M., Van Vuuren, J.J., 2002. Entrepreneurship training for emerging SMEs in South Africa. *J. Small Bus. Manag.* 40 (2), 154–161. <https://doi.org/10.1111/1540-627X.00047>.
- Lambrech, J., Pirnay, F., 2005. An evaluation of public support measures for private external consultancies to SMEs in the Walloon Region of Belgium. *Entrep. Region. Dev.* 17 (2), 89–108.
- Laranja, M., 2009. The development of technology infrastructure in Portugal and the need to pull innovation using proactive intermediation policies. *Technovation* 29 (1), 23–34.
- Lerner, J., Etzkowitz, H., 1999. The government as venture capitalist: The long-run effects of the SBIR Program. *Journal of Business* 72, 285–318.
- Lerner, J., 2000. The problematic venture capitalist. *Science* 287 (5455), 977–979. <https://doi.org/10.1126/science.287.5455.977>.
- Leydesdorff, L., Etzkowitz, H., 1996. Emergence of a Triple Helix of university—Industry—Government relations. *Sci. Public Policy* 23 (5), 279–286. <https://doi.org/10.1093/spp/23.5.279>.
- Leydesdorff, L., Etzkowitz, H., 1998. The triple helix as a model for innovation studies. *Sci. Public Policy* 25 (3), 195–203. <https://doi.org/10.1093/spp/25.3.195>.
- Linton, J.D., Thongpapanl, N., 2004. Ranking the technology innovation management journals. *J. Prod. Innovat. Manag.* 21 (2), 123–139. <https://doi.org/10.1111/j.0737-6782.2004.00062.x>.
- Litwin, A.S., Phan, P.H., 2013. Quality over quantity: reexamining the link between entrepreneurship and job creation. *ILR Rev.* 66 (4), 833–873. <https://doi.org/10.1177/001979391306600405>.
- Lockett, A., Wright, M., 2005. Resources, capabilities, risk capital and the creation of university spin-out companies. *Res. Policy* 34 (7), 1043–1057.

- Lockett, A., Wright, M., Franklin, S., 2003. Technology transfer and universities' spin-out strategies. *Small Bus. Econ.* 20 (2), 185–200.
- Löfsten, H., Lindelöf, P., 2002. Science parks and the growth of new technology-based firms—Academic-industry links, innovation and markets. *Res. Policy* 31 (6), 859–876.
- Löfsten, H., Lindelöf, P., 2003. Determinants for an entrepreneurial milieu: science parks and business policy in growing firms. *Technovation* 23 (1), 51–64. [https://doi.org/10.1016/S0166-4972\(01\)00086-4](https://doi.org/10.1016/S0166-4972(01)00086-4).
- López-Duarte, C., Vidal-Suárez, M.M., González-Díaz, B., 2016. International business and national culture: a literature review and research agenda. *Int. J. Manag. Rev.* 18 (4), 397–416. <https://doi.org/10.1111/ijmr.12070>.
- Low, M.B., MacMillan, I.C., 1988. Entrepreneurship: past research and future challenges. *J. Manage.* 14 (2), 139–161. <https://doi.org/10.1177/014920638801400202>.
- Lu, J., Tao, Z., 2010. Determinants of entrepreneurial activities in China. *J. Bus. Ventur.* 25 (3), 261–273. <https://doi.org/10.1016/j.jbusvent.2008.10.005>.
- Lu, Y., Papagiannidis, S., & Alamanos, E. (2018). Internet of things: a systematic review of the business literature from the user and organisational perspectives. *Technol. Forecast. Soc. Change.* 10.1016/j.techfore.2018.01.022.
- Lundstrom, A., Stevenson, L.A., 2006. *Entrepreneurship Policy: Theory and Practice*. Springer, US.
- Mack, E., Mayer, H., 2016. The evolutionary dynamics of entrepreneurial ecosystems. *Urban Stud.* 53 (10), 2118–2133. <https://doi.org/10.1177/0042098015586547>.
- MacMillan, I.C., 1991. Delineating a forum for entrepreneurship scholars. *J. Bus. Ventur.* 6 (2), 83–87.
- Major, E.J., Cordey-Hayes, M., 2000. Engaging the business support network to give SMEs the benefit of foresight. *Technovation* 20 (11), 589–602. [https://doi.org/10.1016/S0166-4972\(00\)00006-7](https://doi.org/10.1016/S0166-4972(00)00006-7).
- Martin, B.C., McNally, J.J., Kay, M.J., 2013. Examining the formation of human capital in entrepreneurship: a meta-analysis of entrepreneurship education outcomes. *J. Bus. Ventur.* 28 (2), 211–224. <https://doi.org/10.1016/j.jbusvent.2012.03.002>.
- Martin, W., Wech, B.A., Sandefur, J., Pan, R., 2006. African American small business owners' attitudes toward business training. *J. Small Bus. Manag.* 44 (4), 577–591.
- Mason, C., Brown, R., 2013. Creating good public policy to support high-growth firms. *Small Bus. Econ.* 40 (2), 211–225. <https://doi.org/10.1007/s11187-011-9369-9>.
- Mason, C., Harrison, R.T., 2002. Barriers to investment in the informal venture capital sector. *Entrep. Region. Dev.* 14 (3), 271–287. <https://doi.org/10.1080/08985620210142011>.
- Mas-Ruiz, F., Ruiz-Moreno, F., 2011. Rivalry within strategic groups and consequences for performance: the firm-size effects. *Strategic Manag. J.* 32 (12), 1286–1308. <https://doi.org/10.1002/smj.936>.
- Massey, D.B., Quintas, P., Wield, D., 1992. *High-tech Fantasies: Science Parks in Society, Science, and Space*. Routledge.
- Masten, J., Kandoole, B., 2000. The transfer of small business assistance strategies to emerging countries: the case of Malawi. *J. Technol. Transf.* 25 (3), 289–298.
- Mazzarol, T. (2014). 6 ways governments can encourage entrepreneurship. Retrieved May 16, 2017, from World Economic Forum website: <https://www.weforum.org/agenda/2014/12/6-ways-governments-can-encourage-entrepreneurship/>.
- McGahan, A.M., Porter, M.E., 1997. How much does industry matter, really. *Strategic Manag. J.* 18, 15–30.
- McMullan, W.E., Chrisman, J.J., Vesper, K., 2002. Lessons from successful innovations in entrepreneurial support programming. In: Chrisman, J.J., Holbrook, J.A.D., Chua, J.H. (Eds.), *Innovation and Entrepreneurship in Western Canada: From Family Businesses to Multinationals*. University of Calgary Press, Calgary, Alberta.
- McMullan, W.E., Long, W.A., Graham, J.B., 1986. Assessing economic value added by university-based new-venture outreach programs. *J. Bus. Ventur.* 1 (2), 225–240. [https://doi.org/10.1016/0883-9026\(86\)90016-9](https://doi.org/10.1016/0883-9026(86)90016-9).
- Meister, A.D., Mauer, R., 2019. Understanding refugee entrepreneurship incubation – an embeddedness perspective. *Int. J. Entrep. Behav. Res.* 25 (5), 1065–1092. <https://doi.org/10.1108/IJEBR-02-2018-0108>.
- Meyskens, M., Carsrud, A.L., Cardozo, R.N., 2010. The symbiosis of entities in the social engagement network: the role of social ventures. *Entrep. Region. Dev.* 22 (5), 425–455. <https://doi.org/10.1080/08985620903168299>.
- Mian, S.A., 1996. Assessing value-added contributions of university technology business incubators to tenant firms. *Research Policy* 25 (3), 325–335. [https://doi.org/10.1016/0048-7333\(95\)00828-4](https://doi.org/10.1016/0048-7333(95)00828-4).
- Mian, S.A., 1997. Assessing and managing the university technology business incubator: an integrative framework. *J. Bus. Ventur.* 12 (4), 251–285.
- Michael, S.C., Pearce II, J.A., 2009. The need for innovation as a rationale for government involvement in entrepreneurship. *Entrep. Region. Dev.* 21 (3), 285–302. <https://doi.org/10.1080/08985620802279999>.
- Minniti, M., 2008. The role of government policy on entrepreneurial activity: productive, unproductive, or destructive. *Entrep. Theory Pract.* 32 (5), 779–790.
- Mole, K.F., Keogh, W., 2009. The implications of public sector small business advisers becoming strategic sounding boards: England and Scotland compared. *Entrep. Region. Dev.* 21 (1), 77–97.
- Morris, M.H., Kuratko, D.F., Cornwall, J.R., 2013. *Entrepreneurship Programs and the Modern University*. Edward Elgar Publishing, Cheltenham, UK.
- Mowery, D.C., 2011. Nanotechnology and the US national innovation system: continuity and change. *J. Technol. Transf.* 36 (6), 697–711. <https://doi.org/10.1007/s10961-011-9210-2>.
- Murdoch, K.A., 2012. Entrepreneurship policy: trade-offs and impact in the EU. *Entrep. Region. Dev.* 24 (9–10), 879–893. <https://doi.org/10.1080/08985626.2012.742324>.
- Nambisan, S., Baron, R.A., 2013. Entrepreneurship in innovation ecosystems: entrepreneurs' self-regulatory processes and their implications for new venture success. *Entrepreneurship* 37 (5), 1071–1097. <https://doi.org/10.1111/j.1540-6520.2012.00519.x>.
- Nasra, R., Dacin, M.T., 2010. Institutional arrangements and international entrepreneurship: the state as institutional entrepreneur. *Entrep. Theory Pract.* 34 (3), 583–609. <https://doi.org/10.1111/j.1540-6520.2009.00354.x>.
- Neumark, D., Salas, J.L., Wascher, W., 2014. Revisiting the minimum wage—employment debate: throwing out the baby with the bathwater. *ILR Rev.* 67 (3, suppl), 608–648.
- Neumark, D., Wall, B., Zhang, J., 2010. Do small businesses create more jobs? New evidence for the United States from the National Establishment Time Series. *Rev. Econ. Stat.* 93 (1), 16–29. https://doi.org/10.1162/REST_a.00060.
- Obeng, B.A., Blundel, R.K., 2013. Evaluating enterprise policy interventions in africa: a critical review of Ghanaian small business support services. *J. Small Bus. Manag.* 53 (2), 416–435.
- Pandey, I.M., 1998. The process of developing venture capital in India. *Technovation* 18 (4), 253–261.
- Parker, R., 2008. Governance and the entrepreneurial economy: a comparative analysis of three regions. *Entrep. Theory Pract.* 32 (5), 833–854. <https://doi.org/10.1111/j.1540-6520.2008.00258.x>.
- Parker, S.C., Belghitar, Y., 2006. What happens to nascent entrepreneurs? An econometric analysis of the PSED. *Small Bus. Econ.* 27 (1), 81–101.
- Patton, M.Q., 2014. *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. SAGE Publications.
- Patzelt, H., Shepherd, D.A., 2009. Strategic entrepreneurship at universities: academic entrepreneurs' assessment of policy programs. *Entrep. Theory Pract.* 33 (1), 319–340. <https://doi.org/10.1111/j.1540-6520.2008.00291.x>.
- Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Broström, A., D'Este, P., ... Sobrero, M., 2013. Academic engagement and commercialisation: A review of the literature on university–industry relations. *Research Policy* 42 (2), 423–442. <https://doi.org/10.1016/j.respol.2012.09.007>.
- Perkmann, M., Walsh, K., 2007. University–industry relationships and open innovation: towards a research agenda. *Int. J. Manag. Rev.* 9 (4), 259–280. <https://doi.org/10.1111/j.1468-2370.2007.00225.x>.
- Perrilla, N., 1997. Business counselling services directed towards female entrepreneurs—Some legitimacy dilemmas. *Entrep. Region. Dev.* 9 (3), 239–258. <https://doi.org/10.1080/08985629700000014>.
- Phan, P.H., Siegel, D.S., Wright, M., 2005. Science parks and incubators: observations, synthesis and future research. *J. Bus. Ventur.* 20 (2), 165–182. <https://doi.org/10.1016/j.jbusvent.2003.12.001>.
- Politis, D., 2008. Business angels and value added: what do we know and where do we go? *Venture Capital* 10 (2), 127–147. <https://doi.org/10.1080/13691060801946147>.
- Porter, M.E., 1979. The structure within industries and companies' performance. *Rev. Econ. Stat.* 214–227.
- Powell, G.N., Eddleston, K.A., 2013. Linking family-to-business enrichment and support to entrepreneurial success: Do female and male entrepreneurs experience different outcomes? *Journal of Business Venturing* 28 (2), 261–280. <https://doi.org/10.1016/j.jbusvent.2012.02.007>.
- Price, S., & Siegel, D. (2019) (forthcoming). Assessing the role of the federal government in the development of new products, industries, and companies: case study evidence since world war ii. *Ann. Sci. Technol. Policy*, forthcoming.
- Qian, H., Haynes, K.E., 2013. Beyond innovation: the small business innovation research program as entrepreneurship policy. *J. Technol. Transf.* 39 (4), 524–543. <https://doi.org/10.1007/s10961-013-9323-x>.
- Ram, M., Smallbone, D., 2003. Policies to support ethnic minority enterprise: the English experience. *Entrep. Region. Dev.* 15 (2), 151–166.
- Ratinho, T., Harms, R., Walsh, S., 2015. Structuring the technology entrepreneurship publication landscape: making sense out of chaos. *Technol. Forecast. Soc. Change* 100, 168–175. <https://doi.org/10.1016/j.techfore.2015.05.004>.
- Riding, A.L., Haines Jr., G., 2001. Loan guarantees: costs of default and benefits to small firms. *J. Bus. Ventur.* 16 (6), 595–612. [https://doi.org/10.1016/S0883-9026\(00\)00050-1](https://doi.org/10.1016/S0883-9026(00)00050-1).
- Rotefoss, B., Kolvereid, L., 2005. Aspiring, nascent and fledgling entrepreneurs: an investigation of the business start-up process. *Entrep. Region. Dev.* 17 (2), 109–127. <https://doi.org/10.1080/08985620500074049>.
- Rotger, G.P., Gortz, M., Storey, D.J., 2012. Assessing the effectiveness of guided preparation for new venture creation and performance: theory and practice. *J. Bus. Ventur.* 27 (4), 506–521. <https://doi.org/10.1016/j.jbusvent.2012.01.003>.
- Rothwell, R., 1985. Venture finance, small firms and public policy in the UK. *Res. Policy* 14 (5), 253–265. [https://doi.org/10.1016/0048-7333\(85\)90008-3](https://doi.org/10.1016/0048-7333(85)90008-3).
- Schoenecker, T.S., Myers, D.D., Schmidt, P., 1989. Technology transfer at land-grant universities. *J. Technol. Transf.* 14 (2), 28–32.
- Sengers, F., Wieczorek, A.J., & Raven, R. (2016). Experimenting for sustainability transitions: a systematic literature review. *Technol. Forecast. Soc. Change*. 10.1016/j.techfore.2016.08.031.
- Shabbir, A., Di Gregorio, S., 1996. An examination of the relationship between women's personal goals and structural factors influencing their decision to start a business: the case of Pakistan. *J. Bus. Ventur.* 11 (6), 507–529. [https://doi.org/10.1016/S0883-9026\(96\)00034-1](https://doi.org/10.1016/S0883-9026(96)00034-1).
- Shadish, W.R., Cook, T.D., Campbell, D.T., 2002. *Experimental and Quasi-experimental Designs For Generalized Causal Inference*. Houghton Mifflin, San Francisco, CA.
- Shane, S., 2008. *The Illusions of Entrepreneurship: The Costly Myths That Entrepreneurs, Investors, and Policy Makers Live By*. Yale University Press, New Haven, CT.
- Sharma, P., Chrisman, S.J.J., 1999. Toward a Reconciliation of the Definitional Issues in the Field of Corporate Entrepreneurship*. *Entrepreneurship Theory and Practice* 23 (3), 83–103. https://doi.org/10.1007/978-3-540-48543-8_4.
- Shane, S., 2009. Why encouraging more people to become entrepreneurs is bad public policy. *Small Bus. Econ.* 33 (2), 141–149. <https://doi.org/10.1007/s11187-009-9215-5>.

- Shepherd, D.A., Williams, T.A., Patzelt, H., 2015. Thinking about entrepreneurial decision making: review and research agenda. *J. Manage.* 41 (1), 11–46. <https://doi.org/10.1177/0149206314541153>.
- Sherman, H., 1998. Comments on Peter Bearse's "A Question of Evaluation." *Econ. Dev. Q.* 12 (4), 334–335. <https://doi.org/10.1177/089124249801200405>.
- Short, J., 2009. The art of writing a review article. *J. Manage.* 35 (6), 1312–1317. <https://doi.org/10.1177/0149206309337489>.
- Skuras, D., Dimara, E., Vakrou, K., 2000. The day after grant-aid: business development schemes for small rural firms in lagging areas of Greece. *Small Bus. Econ.* 14 (2), 125–136. <https://doi.org/10.1023/A:1008163517068>.
- Smallbone, D., Welter, F., 2001. The distinctiveness of entrepreneurship in transition economies. *Small Bus. Econ.* 16 (4), 249–262.
- Söderblom, A., Samuelsson, M., Wiklund, J., Sandberg, R., 2015. Inside the black box of outcome additionality: effects of early-stage government subsidies on resource accumulation and new venture performance. *Res. Policy* 44 (8), 1501–1512. <https://doi.org/10.1016/j.respol.2015.05.009>.
- Solomon, G.T., Bryant, A., May, K., Perry, V., 2013. Survival of the fittest: technical assistance, survival and growth of small businesses and implications for public policy. *Technovation* 33 (8–9), 292–301. <https://doi.org/10.1016/j.technovation.2013.06.002>.
- Sorenson, O., Stuart, T.E., 2008. Entrepreneurship: a field of dreams? *Acad. Manag. Ann.* 2 (1), 517–543. <https://doi.org/10.1080/19416520802211669>.
- Spencer, J.W., Murtha, T.P., Lenway, S.A., 2005. How governments matter to new industry creation. *Acad. Manag. Rev.* 30 (2), 321–337.
- Stam, E., 2015. Entrepreneurial ecosystems and regional policy: a sympathetic critique. *Eur. Plann. Stud.* 23 (9), 1759–1769. <https://doi.org/10.1080/09654313.2015.1061484>.
- Steffensen, M., Rogers, E.M., Speakman, K., 2000. Spin-offs from research centers at a research university. *J. Bus. Ventur.* 15 (1), 93–111.
- Stenholm, P., Acs, Z.J., Wuebker, R., 2013. Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *J. Bus. Ventur.* 28 (1), 176–193. <https://doi.org/10.1016/j.jbusvent.2011.11.002>.
- Sternberg, R., 2014. Success factors of university-spin-offs: regional government support programs versus regional environment. *Technovation* 34 (3), 137–148. <https://doi.org/10.1016/j.technovation.2013.11.003>.
- Stewart, A., Cotton, J., 2013. Making sense of entrepreneurship journals: journal rankings and policy choices. *Int. J. Entrep. Behav. Res.* 19 (3), 303–323.
- Surie, G., 2017. Creating the innovation ecosystem for renewable energy via social entrepreneurship: insights from India. *Technol. Forecast. Soc. Change* 121 (Supplement C), 184–195. <https://doi.org/10.1016/j.techfore.2017.03.006>.
- Suzuki, K., Kim, S.-H., Bae, Z.-T., 2002. Entrepreneurship in Japan and Silicon Valley: a comparative study. *Technovation* 22 (10), 595–606.
- Švarc, J., 2006. Socio-political factors and the failure of innovation policy in Croatia as a country in transition. *Res. Policy* 35 (1), 144–159. <https://doi.org/10.1016/j.respol.2005.09.002>.
- Szirmai, A., Naudé, W., Goedhuys, M., 2011. *Entrepreneurship, innovation, and Economic Development*. Oxford University Press, Oxford, UK.
- Tassey, G., 2010. Rationales and mechanisms for revitalizing US manufacturing R&D strategies. *J. Technol. Transf.* 35 (3), 283–333. <https://doi.org/10.1007/s10961-009-9150-2>.
- Thakur, S.P., 1999. Size of investment, opportunity choice and human resources in new venture growth: some typologies. *J. Bus. Ventur.* 14 (3), 283–309. [https://doi.org/10.1016/S0883-9026\(98\)00002-0](https://doi.org/10.1016/S0883-9026(98)00002-0).
- Theodorakopoulos, N., Sánchez Preciado, D.J., Bennett, D., 2012. Transferring technology from university to rural industry within a developing economy context: the case for nurturing communities of practice. *Technovation* 32 (9–10), 550–559. <https://doi.org/10.1016/j.technovation.2012.05.001>.
- Tranfield, D., Denyer, D., Smart, P., 2003. Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *Brit. J. Manag.* 14 (3), 207–222. <https://doi.org/10.1111/1467-8551.00375>.
- Turok, I., 1997. Evaluating European support for business development: evidence from the structural funds in Scotland. *Entrep. Region. Dev.* 9 (4), 335–352. <https://doi.org/10.1080/08985629700000019>.
- Tyson, L., Petrin, T., Rogers, H., 1994. Promoting entrepreneurship in Eastern Europe. *Small Bus. Econ.* 6 (3), 165–184. <https://doi.org/10.1007/BF01108286>.
- Urbano, D., Aparicio, S., Audretsch, D., 2019. Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned? *Small Bus. Econ.* 53 (1), 21–49. <https://doi.org/10.1007/s11187-018-0038-0>.
- Van De Ven, H., 1993. The development of an infrastructure for entrepreneurship. *J. Bus. Ventur.* 8 (3), 211–230. [https://doi.org/10.1016/0883-9026\(93\)90028-4](https://doi.org/10.1016/0883-9026(93)90028-4).
- Vekstein, D., 1999. Defense conversion, technology policy and R&D networks in the innovation system of Israel. *Technovation* 19 (10), 615–629. [https://doi.org/10.1016/S0166-4972\(99\)00066-8](https://doi.org/10.1016/S0166-4972(99)00066-8).
- Vuola, O., Hameri, A.-P., 2006. Mutually benefiting joint innovation process between industry and big-science. *Technovation* 26 (1), 3–12.
- Welter, F., 2011. Contextualizing entrepreneurship—conceptual challenges and ways forward. *Entrep. Theory Pract.* 35 (1), 165–184. <https://doi.org/10.1111/j.1540-6520.2010.00427.x>.
- Welter, F., Baker, T., Audretsch, D.B., Gartner, W.B., 2017. Everyday entrepreneurship—a call for entrepreneurship research to embrace entrepreneurial diversity. *Entrep. Theory Pract.* 41 (3), 311–321. <https://doi.org/10.1111/etap.12258>.
- Wit, G., Kok, J., 2014. Do small businesses create more jobs? New evidence for Europe. *Small Bus. Econ.* 42 (2), 283–295. <https://doi.org/10.1007/s11187-013-9480-1>.
- Wonglimpiyarat, J., 2010. Commercialization strategies of technology: lessons from Silicon Valley. *J. Technol. Transf.* 35 (2), 225–236. <https://doi.org/10.1007/s10961-009-9117-3>.
- Woolley, J.L., Rottner, R.M., 2008. Innovation policy and nanotechnology entrepreneurship. *Entrep. Theory Pract.* 32 (5), 791–811.
- Xiao, L., 2011. Financing high-tech SMEs in China: a three-stage model of business development. *Entrep. Region. Dev.* 23 (3–4), 217–234. <https://doi.org/10.1080/08985620903233937>.
- Zahra, S.A., 1991. Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. *Journal of Business Venturing* 6 (4), 259–285. [https://doi.org/10.1016/0883-9026\(91\)90019-A](https://doi.org/10.1016/0883-9026(91)90019-A).
- Zahra, S.A., Newey, L.R., Shaver, J.M., 2011. Academic advisory boards' contributions to education and learning: Lessons from entrepreneurship centers. *Academy of Management Learning & Education* 10 (1), 113–129.
- Zahra, S.A., Nambisan, S., 2011. Entrepreneurship in global innovation ecosystems. *AMS Rev.* 1 (1), 4–17. <https://doi.org/10.1007/s13162-011-0004-3>.

Tiago Ratinho is Associate Professor in Entrepreneurship at IÉSEG School of Management (Paris, France). He holds a PhD from the University of Twente having defended his thesis on the impact of business incubation in 2011. His research interests are in the fields of Entrepreneurship, Strategy, and Technology Transfer. Tiago graduated in Industrial Engineering (Évora) and holds a MSc in Engineering Policy and Management of Technology (Lisbon). His research has been published in international journals (e.g. *Journal of Business Venturing*, *Technovation*, *Technological Forecasting and Social Change*) and international conferences (e.g. *Academy of Management Meetings*, *Babson College Research Conference on Entrepreneurship*). Google Scholar page at http://scholar.google.com/citations?hl=en&user=9eQ0_s0AAAAJ.

Alejandro S. Amezcua, Ph.D. is an assistant professor of entrepreneurship at the Whitman School of Management at Syracuse University. He researches new venture strategy by adapting theories on organizational sponsorship and population ecology to evaluate whether new ventures that accept government support outperform their peers. He recently completed the first National Census of Business Incubators and their Tenants, a longitudinal database that tracks the performance of over 19,000 incubated businesses in the United States. Dr. Amezcua holds a Ph.D. and an MPA in Public Administration from the Maxwell School of Syracuse University. He holds a Bachelor of Arts in Anthropology and Comparative Studies in Race and Ethnicity from Stanford University.

Benson Honig is the Teresa Cascioli Chair in Entrepreneurial Leadership, DeGroote School of Business, McMaster University. Studying entrepreneurship worldwide, his research interests include organizational theory, nascent entrepreneurship, transnational entrepreneurship and environments of transition, social entrepreneurship, social capital, professional ethics and business planning. He has published over 100 articles in leading academic journals and the media. His work can be found in the *Journal of Management*, *Organization Studies*, *Journal of Business Venturing*, *Academy of Management Learning and Education*, *Academy of Management Perspectives*, *Entrepreneurship Theory and Practice*, *Journal of Management Studies*, *Journal of Business Venturing*, and the *Journal of World Business*, among others.

Zhaocheng Zeng is Assistant Professor in Entrepreneurship at Kansai Gaidai University in Osaka, Japan. Dr. Zeng holds a PhD degree in Business Administration from McMaster University, Canada. She holds a Master of Engineering Entrepreneurship and Innovation degree from McMaster University and a Bachelor of Software Engineering degree from Sun Yat-sen University, China. Her research interests include entrepreneurship education, technology entrepreneurship, and entrepreneurship support. She has presented her research at international conferences such as AOM (meetings of the Academy of Management), USASBE (United States Association for Small Business and Entrepreneurship), and ASAC (Administrative Sciences Association of Canada conferences).