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The Injection of Resources by Transnational Entrepreneurs: Towards a Model of the Early Evolution of an Entrepreneurial Ecosystem

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Abstract

Despite its rapid proliferation, the extant literature on entrepreneurial ecosystems has not paid considerable attention to the evolutionary nature of entrepreneurial ecosystems, mainly due to prevailing structuralist approaches in previous research. Particularly unclear is the early evolutionary context in which a region without rich entrepreneurial resources gains momentum and transforms into a nascent entrepreneurial ecosystem. The literature overlooks ecosystem dynamics in regions with limited entrepreneurial resources, as most studies have investigated more developed entrepreneurial ecosystems. This study illuminates one means to overcome resource scarcity on a regional level: resource injection by attracting transnational entrepreneurs, who transfer unique resources from one location to another. Based on an explorative qualitative study in the Santiago entrepreneurial ecosystem in Chile, where governmental actors incentivised transnational entrepreneurs to temporarily relocate to Santiago, this article proposes a three-step model of resource injection by transnational entrepreneurs with the following components: (i) stimulation of early ecosystem evolutionary momentum, (ii) evocation of institutional changes, and (iii) establishment of a resilient ecosystem. The findings offer practical implications for policymakers in emerging countries to utilise transnational entrepreneurs' resources for developing an ecosystem in their region.

Keywords: entrepreneurial ecosystems, transnational entrepreneurship, ecosystem evolution, entrepreneurial migrants, entrepreneurship policy, Santiago entrepreneurial ecosystem

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The Injection of Resources by Transnational Entrepreneurs: Towards a Model of the Early Evolution of an Entrepreneurial Ecosystem

Introduction

At present, policymakers are showing increased interest in learning how to build a thriving entrepreneurial ecosystem (EE) in their own regions. Research on this phenomenon has also increased, with EEs becoming one of the most popular subjects in contemporary entrepreneurship research as of the 2010s. However, extant research largely focuses on identifying common mechanisms to determine the nature and performance of EEs (Isenberg 2011; Stam 2015), comparatively neglecting evolutionary perspectives. Acknowledging the prevailing structuralist approach, which emphasises the isomorphic (rather than idiosyncratic) nature of the phenomenon, scholars have recently begun to intensively discuss evolutionary aspects of EEs (Baron and Freiling 2019; Spigel and Harrison 2018). In this respect, several scholars identified determinants of ecosystem evolution, such as entrepreneurial communities (Thompson, Purdy and Ventresca 2018) and the intentionality of entrepreneurs (Roundy, Bradshaw and Brockman 2018). Deeply rooted in regional institutional dynamics and historical contexts, such determinants are closely related to the institutional settings of an EE (Acs, Autio and Szerb 2014).

While researchers have named various types of drivers for ecosystem evolution, one aspect common to all of them, either directly or indirectly, is their relation to the creation, acquisition, multiplication or recycling of entrepreneurial resources on the regional level. The relative availability of rich entrepreneurial resources is a prerequisite for the emergence of EEs (Mason and Brown 2014). However, this does not mean that only regions with an abundant resource base can develop thriving EEs. Even when regions do not initially possess such resources, they can acquire them through 'resource injections' (Roundy, Bradshaw and Brockman 2018; Spigel and Harrison 2018). One possible means for resource injections is the attraction of transnational entrepreneurs, who transfer various types of resources from one country to another by creating cross-border businesses (Drori, Honig and Wright 2009). When transnational entrepreneurs join a foreign EE, they often contribute unique human and social capital that can enrich local environments (Baron and Harima 2019; Brown et al. 2019).

Injecting resources into the ecosystem appears to be a faster and more efficient approach than cultivating them on their own, as doing so would require a considerable amount of time and financial resources. That said, resource injection, however appealing, is an extremely dynamic process, one which requires policymakers to develop specific facilitative capacities in this regard. While scholarship is aware of the need for resource injection, little is known about *which* resources can be injected or *how* they can be intertwined with given institutional ecosystem conditions to lend momentum to EE development.

Against this background, the current study investigated how a region without rich entrepreneurial resources can use resource injection to facilitate EE dynamics by attracting transnational entrepreneurs. Accordingly, the following research questions were addressed: (1) How can a region use resource injection to facilitate EE dynamics by attracting transnational entrepreneurs? (2) How are injected entrepreneurial resources intertwined with the institutional conditions of the ecosystem? and (3) How can resource injection transform an emerging EE into a resilient EE?

To answer these questions, we conducted an explorative qualitative study in Santiago, Chile. The Santiago ecosystem is unique, as governmental actors have taken proactive political action to subsidise ecosystem actors and to attract transnational entrepreneurs with incentives to create an EE in their region (Genome 2017; Gonzalez-Uribe and Leatherbee 2018). Based on the empirical evidence, we developed a conceptual model for the early evolution of the ecosystem. The model consists of three steps: (i) stimulating early evolutionary momentum, (ii) evoking institutional changes and (iii) establishing a resilient ecosystem.

This paper begins with a literature review of EEs and transnational entrepreneurship. Next, we explain our methodological approach. After that, we briefly describe the emergence of the Santiago EE and then present and explain the conceptual model. Finally, we discuss our research contributions, practical implications, limitations and future perspectives.

Conceptual Background

Research Status of Entrepreneurial Ecosystems (EEs)

EE has become an exceedingly popular concept in recent entrepreneurship research (Cavallo, Ghezzi and Balocco 2018; Alvedalen and Boschma 2017). This alternative view on entrepreneurial activities emerged from a wide range of earlier literature streams on biological (Tansley 1935), urban (Bolund and Hunhammar 1999), educational (Crosling, Nair and Vaithilingam 2015) and innovation ecosystems (Adner 2006). Despite some early, sporadic discussions on EEs (Valdez 1988; Bahrami and Evans 1995; Van De Ven 1993), it took more than two decades for the concept to gain acceptance among entrepreneurship scholars. In the 2000s, several researchers began paying more attention to EEs (Cohen 2006; Isenberg 2010), which in turn sparked intensive discussions in the 2010s (cf. Mason and Brown 2014; Stam 2015; Stam and Spigel 2016).

The investigation of EEs demands careful consideration from researchers for three main reasons: first, the literature has applied the term 'entrepreneurial ecosystem' to different ontological units, such as national environments (Acs, Autio and Szerb 2014; Qian, Acs and Stough 2013), stakeholders (Bischoff, Volkmann and Audretsch 2017), platforms (Sussan and Acs 2017; Eckhardt, Ciuchta and Carpenter 2018), business models (Yun et al. 2017) and universities (Audretsch and Link 2019; Theodoraki, Messeghem, and Rice 2018). This study explored the most prevailing unit of EEs, namely the regional environment (Brown and Mason 2017).

Second, an EE has several conceptual antecedents. Acs et al. (2017) explained that EE research stems from two dominant approaches: strategic management and regional development. These two streams 'share common roots in ecological system thinking, focusing on the interdependence of actors in a particular community to create new value' (Acs et al. 2017, 2). Scholars also relate EEs to other conceptual antecedents, such as clusters (Gilbert, McDougall and Audretsch 2008; Porter 2000), regional innovation systems (Asheim and Isaken 2002), business ecosystems (Adner 2017; Iansiti and Levien 2004), industrial parks (Côté and Hall 1995) and regional networks (Almeida and Kogut 1999; Saxenian 1990). While these concepts certainly bear similarities to EEs, scholars have highlighted critical differences between them. Spigel (2016) argued that a key difference between the concepts of clusters and EEs is that while both assume benefits from being in the same geographical region, clusters focus on intra-industry assets and

technical synergies within a particular industry, whereas EEs primarily focus on start-up activities regardless of industry boundaries. Regional innovation systems refer to institutional networks that connect creators of knowledge, such as universities, with regional firms to facilitate spill-over effects (Asheim and Isaken 2002). Spigel and Harrison (2018) highlighted differences regarding the role of entrepreneurs: In regional innovation systems, entrepreneurs represent one of many actors involved in the creation of innovation; whereas in EEs, entrepreneurs and their activities are the focal points of the entire system.

Third, conceptually speaking, ecosystems have a 'fuzzy' nature (Brown and Mason 2017), i.e. they encompass complex phenomena with multiple interdependent dimensions and complementarities, leading to different understandings of EEs (Malecki 2018; Cavallo, Ghezzi and Balocco 2018). While Stam (2015) stressed the interdependence of actors and factors in facilitating productive entrepreneurship within a particular territory, Acs et al. (2014) highlighted 'the dynamic, institutionally embedded interaction between entrepreneurial attitudes, ability, and aspirations, by individuals, which drives the allocation of resources through the creation and operation of new ventures' (479). Further, Acs and colleagues emphasised the important role of resources and the dynamic nature and institutional embeddedness of EEs. As both aspects were essential for understanding early ecosystem evolution within a region without rich entrepreneurial resources, this study approached an EE as a dynamic interaction between interdependent actors and other factors embedded in institutional environments of a particular region, one which drives the allocation of resources through the creation and operation of new ventures.

Previous research on EEs employed different approaches to investigate this complex phenomenon, prominent among them being the identification and modelling of significant domains of EEs (Isenberg 2010; Stam 2015; Audretsch and Belitski 2016). Another major approach involved exploring ways to measure the output and quality of EEs based on performance indicators. Finally, an emerging approach to EEs involves creating theories inductively (Spigel 2017; Roundy 2016) and connecting them to existing theories (Roundy, Bradshaw and Brockman 2018; O'Connor and Reed 2018).

Evolutionary Perspectives of Entrepreneurial Ecosystems (EEs)

EEs are evolving systems – and yet, extant research tends to describe ecosystems as static phenomena, neglecting entrepreneurial dynamics and governance mechanisms relevant to EEs (Cavallo, Ghezzi and Balocco 2018; Spigel and Harrison 2018). Recognising this research gap, Mack and Mayer (2016) made an initial attempt to propose a framework of EE evolution comprising four life-cycle stages. Similarly, Auerswald and Dani (2017) developed a four-phase life-cycle model inspired by biodiversity. While the literature on cluster life cycles offers insights useful in the context of EEs, the clustering approach tends to incompletely investigate the evolutionary mechanisms that lead ecosystems from one stage to another.

More recently, Thompson et al. (2018) conducted a longitudinal analysis of evolutionary EEs in Seattle, observing that EEs developed via three formative activities: community creation, legal infrastructure development, and the generation of financial support. By applying a complex adaptive system view, Roundy et al. (2018) conceptualised EE emergence by three forces, namely intentionality of entrepreneurs, coherence of entrepreneurial activities, and injections of resources. Mason and Brown suggested a

binary typology comprising an 'embryonic ecosystem' and 'scale-up ecosystem' as two basic types of EEs (Mason and Brown 2014; Brown and Mason 2017).

Each ecosystem is idiosyncratic due to its peculiar embeddedness in context-specific institutional environments. Accordingly, the development of EEs is an outcome of social interactions between various actors and sub-ecosystems embedded in specific societal contexts (Malecki 2018). Roundy et al. (2018) argued that EEs are, by nature, sensitive to initial conditions and configurations, which may significantly impact their evolution. In this regard, scholars generally argue that the availability of entrepreneurial resources in a region will critically determine the initial conditions of EEs. The literature considers the possession of a rich knowledge base as a prerequisite for the emergence of EEs, as suggested by Mason and Brown (2014): '(...) the entrepreneurial ecosystems do not emerge just anywhere. They need fertile soil' (13). In reality, however, most regions for which policymakers are interested in developing an EE have not yet even reached the 'embryonic ecosystem' (Brown and Mason 2017) stage. Spigel and Harrison (2018) critically reflected on this paradoxical relationship between initial resource configuration and ecosystem evolution: 'it is tautological in that entrepreneurial ecosystems are defined as those that demonstrate successful entrepreneurship, and where successful entrepreneurship is apparent, there must be a strong entrepreneurial ecosystem' (158). This statement indicates the lack of knowledge about how an EE can emerge in a region without a critical mass of entrepreneurial resources from its inception. Thus, it is meaningful to examine how such a resource-scarce region can gain the entrepreneurial resources needed to acquire initial evolutionary momentum.

Recently, some scholars have highlighted the importance of resource injections into EEs. Spigel and Harrison (2018) conceptualised the transformation of a nascent ecosystem with few entrepreneurial resources. They argued that resource flow is decisive for such a transformation, and they called for further investigation into 'the processes through which resources are created or attracted to an ecosystem and the processes by which entrepreneurs access these resources within their local ecosystem' (163). By emphasising regional entrepreneurial resources and networks as core determinants of an ecosystem's functionality, Spigel and Harrison (2018) illustrated how a region can gain external resources and recycle them internally. Similarly, Roundy et al. (2018) advocated the necessity of resource injections into the ecosystem to create coherence among ecosystem actors.

While it is legitimate to argue that acquiring external resources is central to ecosystem evolution, the question of *how* such a resource injection can evoke early ecosystem mechanisms deserves serious attention. The literature has revealed that one way an EE with limited resources may acquire external resources is by involving transnational entrepreneurs (Saxenian 2001).

Transnational Entrepreneurship

The literature offers some empirical evidence that transnational entrepreneurs help trigger ecosystem dynamics. For instance, immigrant entrepreneurs have played a critical role in the evolution of Silicon Valley by forming and strengthening a unique regional and global diaspora network (Saxenian 2005, 2002, 2001). More recently, Baron and Harima (2019) described how transnational entrepreneurs have influenced the development of Berlin's EE with social and human capital distinct from that of local entrepreneurs. Immigrant entrepreneurs, who have gathered entrepreneurial know-how and built a global network,

inject these entrepreneurial resources into the EEs of their home countries (Saxenian 2006; Schäfer and Henn 2018). Spigel and Harrison (2018) also noted that transnational entrepreneurs can inject new capital and resources into ecosystems.

Transnational entrepreneurs play unique roles in transferring entrepreneurial resources between ecosystems. Transnational entrepreneurs are defined as 'individuals that migrate from one country to another, concurrently maintaining business-related linkages with their former country of origin, and currently adopted countries and communities' (Drori, Honig and Wright 2009, 1001). This cross-border engagement enhances their capacity to significantly upgrade their resource base (Drori, Honig and Wright 2009; Baltar and Icart 2013; Fraiberg 2017). Furthermore, transnational entrepreneurs acquire education, vocational experience, language proficiency and intercultural competencies in multiple institutional contexts. By experiencing different institutional environments, they develop cognitive flexibility – called 'bi-locality' (Rouse 1986; Vertovec 2004) – which allows them to judge a situation from different perspectives. By instantly, and often unintentionally, comparing multiple environments, transnational entrepreneurs identify unique entrepreneurial opportunities which have been overlooked by those without migration experience.

Migration facilitates not only human capital, but also social capital. Due to (transnational) mixed embeddedness (Bagwell 2015; Kloosterman and Rath 2001), migrants have access to networks both at home and abroad. Among such networks, researchers pay particular attention to diaspora networks (Dutia 2012; Newland and Tanaka 2010; Kuznetsov 2006). Diaspora networks can offer various forms of capital, ranging from social capital to financial capital (Newland and Tanaka 2010).

Extant research offers rich insights into the unique resources of transnational entrepreneurs, and empirical evidence positions transnational entrepreneurs as distinctive actors who can transfer these resources between EEs and across national borders. However, we still know little about how a region with limited resources mobilises transnational entrepreneurs' resources to initiate early ecosystem dynamics. Consequently, this article examines one EE in a regional context and analyses the injection of transnational entrepreneurs' resources into the region over time.

Methodology

Research Design

This study applied an inductive qualitative research design for several reasons: first, extant studies predominantly explored successful EEs (Neck et al. 2004; Cohen 2006b; Bruns et al. 2017; Nylund and Cohen 2017; Stam 2017; Thompson, Purdy and Ventresca 2018; Spigel 2017; Goswami, Mitchell and Bhagavatula 2018; Krishna and Subrahmanya 2015) but did not explain the resource injection mechanism or nascent EEs that this study sought to investigate. Second, it is essential to understand an EE as a socially constructed and evolutionary phenomenon (Malecki 2018; Isenberg 2010). To grasp early evolutionary mechanisms on the ecosystem level, it is imperative to view a situation holistically, fully considering both entrepreneurs and different stakeholders within the ecosystem.

Data Collection

We selected an EE in Santiago, Chile since the government has been extraordinarily active in national entrepreneurship policy and has allocated a considerable portion of the national budget to developing and implementing numerous policy instruments (Agosin, Grau and Larrain 2010; Contreras and Greenlee 2018; Egusa and O'Shee 2016; Chandra and Silva 2012). Santiago is characterised by an intense demographic and economic concentration of people with access to entrepreneurial support and physical infrastructure (Amorós, Felzensztein and Gimmon 2013). Despite intensive entrepreneurial support by the government, Santiago was 'a city until recently (...) not considered a major entrepreneurship hub' (Gonder 2012, 29). Today, however, Santiago has become one of the leading EEs in Latin America (Genome 2017). Among several public instruments, Start-Up Chile has undoubtedly received the most attention from global entrepreneurial stakeholders outside the country (Carmel and Richman 2013; Gonzalez-Uribe and Leatherbee 2018; Melo 2012). This governmental initiative offers equity-free funding and soft-landings to attract transnational entrepreneurs.

Data collection took place in 2015, 2017 and 2019. As primary data, we considered 35 interviews with different types of ecosystem stakeholders. We conducted 33 in-depth interviews ourselves and included one additional interview (from a secondary source) with Start-Up Chile's founder, as he is clearly a very influential person in the ecosystem. Additionally, we conducted an interview with an external expert in August 2019 to triangulate the findings of this study. The interview duration ranged from 40 to 130 minutes. Table 1 presents an overview of the interviewees.

We followed a snowballing strategy (without having previous contacts with ecosystem actors) while simultaneously seeking to purposefully collect data from different types of ecosystem stakeholders to grasp the 'multiple realities' (Schuetz 1945) of the Santiago EE based on critical actor types as determined by previous studies (Cohen 2006; Isenberg 2010; Feld 2012; Stam 2015). The experience of entering the ecosystem as foreign researchers without contacts and with limited linguistic capacity in Spanish required a quasi-ethnographic approach to establish rapport with various ecosystem stakeholders.

Several interview partners served multiple functions within the ecosystem. For instance, CE-3 was once a participant in Start-Up Chile and now works as an academic specialising in entrepreneurial finance. EE-7 was an early employee of Start-Up Chile before founding a co-work chain in Santiago. Such multi-functional interviewees provided us with their retrospective insights from different perspectives. In addition to in-depth interviews, we conducted field observations at multiple start-up events in Santiago, at support organisations for start-ups, and at a co-working space. The observations were protocolled as observation memos and field notes. The observations allowed us to witness and analyse different types of interactions among entrepreneurs and stakeholders in natural settings.

(Insert Table 1 here)

In addition to primary data, we also collected 42 formal documents concerning the development of the Santiago EE as secondary data. These documents were particularly helpful in understanding the aims of the government's strategy and the ecosystem's historical development. Furthermore, we followed Start-Up Chile's social media activities to capture dynamics occurring on this level (Costello, McDermott and Wallace 2017; Housley, Webb, et al. 2017; Housley, Dicks, et al. 2017).

Data Analysis

All the interviews were conducted and transcribed in English. We used MAXQDA and Microsoft Word as technical support to conduct a systematic data analysis. Both the primary and secondary data were imported into MAXQDA. We conducted a three-step analysis. In the first step, two authors paraphrased the interviews independently. Both authors each generated about 2,200 initial codes, following the methods for initial coding suggested by Charmaz (2008). In the second step, the authors collaboratively analysed all the paraphrases and classified them into two different types of emerging categories: descriptive codes and mechanism codes. While the former type was aimed at creating a descriptive overview of the information contained in the collected data, the latter addressed the changes that occurred within the ecosystem. The second step generated the final set of descriptive codes, as visualised in Figure 1. The mechanism codes, on the other hand, were emergent in nature and thus lacked a systematic and logical structure in the second stage. Finally, following the concept of theoretical coding (Charmaz 2008). two researchers conducted an intensive iterative process, contrasting emerging mechanism codes with extant literature to develop a theoretical construct of resource injection. During this iterative process, we identified three different levels of ecosystem evolution: (i) stimulating early momentum, (ii) evoking institutional changes and (iii) establishing a resilient ecosystem. Following the method of Gioia, Corley and Hamilton (2013), we visualised mechanism codes in Figures 2 and 3. Based on the final category system, we developed the three-step model of EE evolution.

(Insert Figure 1 here)

(Insert Figure 2 here)

(Insert Figure 3 here)

Santiago's Entrepreneurial Ecosystem (EE)

Presently, 40.5% of the Chilean population (17.5 million people) live in the capital, Santiago. Since the mid-1980s, Chile has successfully transformed its economy, exhibiting a consistently high growth rate (B chi Buc 2006) thanks to the essential role played by entrepreneurship. CORFO (Corporación de Fomento de la Producción de Chile), a government agency whose primary aim is supporting small businesses and entrepreneurship, has implemented various entrepreneurship support measures, e.g. the Seed Capital Program (Capital Semilla), implemented in 2001 to financially support business incubators (Chanra and Narczewska 2009). Another prominent policy instrument is Fundación Chile, which seeks to attract foreign direct investment in information technology (Agosin, Grau and Larrain 2010). Such extensive political instruments appear to be successful, as indicated by their high total early-stage entrepreneurial activity rate in the Global Entrepreneurship Monitor (Global Entrepreneurship Research Association 2018).

Despite Santiago's entrepreneurship-friendly policies and high level of entrepreneurial activities, participants in this study mostly agreed that there was limited momentum in the evolution of Santiago's EE a decade ago. Scholars have pointed to a few possible explanations, such as the lack of social capital (Klerkx, Álvarez and Campusano 2015, Kantis, Federic and García 2018), insufficient entrepreneurial engagement by universities (Poblete and Amorós 2013; Bernasconi 2005), immature equity funding and

underdeveloped connections among investors (Gianni et al. 2013; Agosin, Grau and Larrain 2010).

Moreover, the institutional setting of Chile as a resource-based economy (mining-centred) may explain the sluggish evolution of the Santiago ecosystem (Bas, Amoros and Kunc 2008). Another institutional factor barring the emergence of a vibrant EE is the Chilean culture, traditionally characterised by a strong hierarchical structure and bureaucracy which places high administrative burdens on (nascent) entrepreneurs (Schwellnus 2010). Sepúlveda and Bonilla (2014) explained that Chileans are risk-averse, tending to 'admire and greatly value anything that is foreign, particularly what comes from the Anglo-Saxon world, where they look for models of behaviours that (can) be imitated or may substitute or become their own projects' (Gómez 2001, 126). This may be attributed to Chile's geographical isolation, which creates an inward orientation among Chileans.

Acknowledging these initial environmental disadvantages, CORFO proactively attracts foreign entrepreneurs to Santiago, mainly through Start-Up Chile. This programme attracts 250–300 start-ups a year by offering equity-free investment and soft-landing support (Genome 2017). Because many transnational entrepreneurs do not ultimately stay in Chile, Start-Up Chile strongly encourages them to transfer their knowledge to local communities during the programme.

Chile's aggressive 'reverse' globalisation strategy has apparently been successful within just a few years. The Santiago EE has become renowned in the global start-up community as 'Chilecon Valley' (Egusa and O'Shee 2016; Dube 2015). Despite some critical evaluations (e.g., Gonzalez-Uribe and Leatherbee 2018), Start-Up Chile has been implicated in the emergence of initial location-based dynamics by 'injecting' foreign entrepreneurial resources temporarily. The Chilean mindset and societal perception towards entrepreneurship have been changing, and the entrepreneurs' societal position has correspondingly increased.

While the emergence of the Santiago EE is undisputed, it nonetheless continues to strongly depend on governmental support and is therefore not resilient – yet. The vast majority of ecosystem actors and investors rely significantly on governmental subsidies. This is because the Santiago EE remains insufficient with regard to a large number of successful start-ups with major exits, foreign and domestic venture capital, and proactive engagement by corporate players. As such, the Santiago EE is not yet self-sustaining, even as it nears the crossroads that will determine its future.

The Three-Step Model for Ecosystem Resource Injection

The following model describes how a region with limited entrepreneurial resources creates initial ecosystem dynamics by gaining external resources from transnational entrepreneurs. This strategy involves three consecutive steps. In the first step, regional policy attracts transnational entrepreneurs, who contribute external resources, which triggers initial dynamics. In the second step, the initial dynamics evoke institutional changes. In the final step, whether the ecosystem can evolve from dependence to independence is determined.

(Insert Figure 4 here)

Level 1: Stimulation of Early Evolutionary Momentum

Transnational entrepreneurs trigger initial ecosystem momentum by (1) creating accessible entrepreneurial role models, (2) demonstrating how to explore and exploit entrepreneurial opportunities, (3) disseminating entrepreneurial knowledge and (4) achieving global connectivity. Table 2 compiles a list of selected quotations for each category.

(Insert Table 2 here)

First, the mass of transnational entrepreneurs created an accessible image of entrepreneurial role models. Through their attitudes towards opportunities and the actions needed to exploit opportunities creatively, transnational entrepreneurs transmitted the entrepreneurial spirit to Chilean locals. Notably, the transnational entrepreneurs demonstrated that entrepreneurship is not exclusively the right of people with extraordinary talents and capacities but is instead an innovative pursuit open to regular people through entrepreneurial activities.

What transnational entrepreneurs created were not outstanding global success stories but rather moderate successes in their previous or current businesses. For instance, some had recently attracted their first major customers or had sold their previous businesses on a small scale. Others participated in different acceleration programmes or had acquired seed investment. Although the ecosystem literature generally acknowledges that successful role models can inspire future entrepreneurs (Bosma et al. 2011; Roundy 2019; Isenberg 2010), findings from Santiago suggest that entrepreneurial role models represent achievable, small-scale success rather than exceptional, large-scale success.

Transnational entrepreneurs also shared their experiences with dynamic entrepreneurial processes that require resilience. For instance, TE-14, who is an entrepreneur from New Zealand, developed a business idea which he wanted to implement in Chile in 2012. His business failed several times due to the conservative nature of the Chilean market, and each failure forced him to change his focus and business model. This study observed that TE-14 acted as a role model by demonstrating entrepreneurial resilience (Tengeh 2016) in the face of unfavourable market conditions. Furthermore, transnational entrepreneurs presented entrepreneurship as a life option. Despite numerous other vocational options, they intentionally chose an entrepreneurial career path. Therefore:

RP1-1: Transnational entrepreneurs act as entrepreneurial role models by creating an accessible image of entrepreneurs, demonstrating achievable success in the seed phase, showing entrepreneurial resilience and embodying the entrepreneurial lifestyle.

Second, the local community was inspired by the presence of so many transnational entrepreneurs, who together demonstrated a diverse range of business ideas that had not yet existed in Chile. For instance, TE-3's familiarity with the healthy snack industry in the US allowed her to recognise this market opportunity in Latin America. Although nutrition and health have become critical issues, e.g. due to the high obesity rate, the healthy food industry in Latin America is still underdeveloped. Accordingly, TE-3 decided to develop and launch affordable and approachable healthy snacks in the Chilean market.

Transnational entrepreneurs not only contribute business ideas from outside Chile but also discover untapped opportunities within Chile. Since they have already experienced different institutional settings, these entrepreneurs can recognise the strengths of Chilean institutions and market potentials which are not explicitly visible to local Chileans. In the literature, researchers recommend that entrepreneurs fill institutional voids by uniquely combining resources to develop innovative solutions (Mair and Martí 2004; Garud, Hardy and Maguire 2002). The diverse interactions among transnational and local entrepreneurs within the Santiago EE made local actors realise where institutional voids existed and how entrepreneurs could address them.

Extant literature explains transnational entrepreneurs' skills at identifying opportunities in host-country environments that are neglected by locals with the concepts of bifocality (Rouse 1986; Vertovec 2002) and mixed embeddedness (Kloosterman and Rath 2001; Kloosterman, Rusinovic and Yeboah 2016). Transnational entrepreneurs thus introduce not only business opportunities but also alternative ways to exploit these opportunities. Moreover, by pursuing a large variety of business ideas, transnational entrepreneurs increase the number of knowledge corridors (Ronstadt 1988) and enhance entrepreneurial 'serendipity' (Dew 2009). Consequent exposure to diverse business ideas not only influences the recognition of entrepreneurial opportunities but also accelerates the growth potential of new firms (Gruber, MacMillan and Thompson 2012).

RP1-2: Transnational entrepreneurs demonstrate different ways to explore and exploit diverse opportunities to the local community by contributing a business idea to the ecosystem from the outside, discovering opportunities within, demonstrating global opportunities, and introducing alternative ways to exploit opportunities.

Third, transnational entrepreneurs contributed both explicit and tacit knowledge related to entrepreneurial activities to Santiago and spread them within the ecosystem. Some entrepreneurs were knowledgeable about technologies applied in the global start-up community. For instance, TE-11 has a virtual reality background and organised the first meeting on this topic for local entrepreneurs in Chile. Another participant, TE-1, possessed extensive knowledge about hardware start-ups (technology, logistics and facilities), which he shared with other entrepreneurs. Other entrepreneurs possessed start-up know-how on useful tools for business development, effective pitching, successful communication with investors and entrepreneurial marketing supported by their own experience. Furthermore, transnational entrepreneurs who had already undergone a dynamic entrepreneurial process also demonstrated an entrepreneurial mindset to local entrepreneurs.

Literature has discussed how a region can gain knowledge from the outside. Motoyama and Knowlton (2016) suggested that government sponsorship could form a cohort of entrepreneurs to design a learning platform. Carayannis et al. (2016) found that the EE can acquire knowledge from outside the region only after developing formal networks to gain knowledge from more distant regions. This network formation allows knowledge appropriation and develops a region's entrepreneurial capacity to create a critical mass of in-flowing knowledge. To this end, in the Santiago case, the government initiated the Start-Up Chile programme, which formed an extensive network on a regional and global scale. Most of the foreign start-ups came to Santiago through the Start-Up Chile programme, which explicitly encourages participants to transfer their entrepreneurial knowledge and mindset to the local community. This sub-programme of Start-Up Chile,

called 'Social Impact/Founders' Lab', encourages transnational entrepreneurs to organise various events and workshops at universities, local schools and companies.

RP1-3: Transnational entrepreneurs contribute both explicit and tacit knowledge related to start-up activities to an emerging ecosystem and disseminate this knowledge within the local community. Formal initiatives and networks that aim at facilitating knowledge transfer are essential for reaching a critical mass.

Fourth, our empirical data revealed that transnational entrepreneurs contributed to enhancing global connectivity within the local ecosystem. On the cognitive level, local entrepreneurs and ecosystem actors have changed their perceptions about global market opportunities, recognising the feasibility of internationalisation due to their daily exposure to many energetic transnational entrepreneurs from all over the world. Dispelling Chileans' geographically induced reluctance towards internationalisation, transnational entrepreneurs have created a somewhat artificial global environment in Santiago, one which has convinced the local community that local start-ups can reach a global market. In a sense, the presence of a temporal global community successfully shortened the psychic distance (cf. Sousa and Bradley 2006; O'Grady and Lane 1996) between the Santiago EE and other EEs in the world.

The high mobility of transnational entrepreneurs can give them an advantage in terms of internationalisation strategies, as they can freely move to favourable locations in search of better opportunities. Transnational entrepreneurs shared their knowledge and experience regarding foreign markets and start-up scenes with local Chilean entrepreneurs through formal and informal interactions. In addition to knowledge, transnational entrepreneurs also have unique social capital, such as diaspora networks (Dutia 2012; Kuznetsov 2006) and transnational entrepreneurial networks (Harima 2014). In the observed cases, transnational entrepreneurs opened their connections to foreign investors, accelerators, suppliers, mentors and customers within the Santiago EE.

RP1-4a: The presence of many transnational entrepreneurs creates a temporal global environment, one which reduces the locals' perceived psychic distance between their local ecosystem and the global market. Daily exposure to the global entrepreneurial community helps ecosystem actors to believe in the global potential of local start-ups.

RP1-4b: With the governmental subsidy, regional policymakers attract transnational entrepreneurs, who contribute their experience in foreign markets and their social capital with the global start-up scene to the region.

Although transnational entrepreneurs can create initial dynamics through their presence and interactions with local ecosystem actors, on level 1, changes within the local EE remained rather superficial, and significant transformation of the EE was not yet observable.

Level 2: Evoking Institutional Changes

Five institutional changes induced by initial dynamics characterise level 2: (1) accumulating entrepreneurial knowledge in the region; (2) fostering entrepreneurial culture; (3) diversifying and intensifying interactions; (4) re-defining the roles of ecosystem stakeholders; and (5) building regional confidence. Compared to the initial dynamics on level 1, these five changes took place on the more profound institutional

level as an institutional reaction of the Santiago EE to the 'injection' of external entrepreneurial resources. The transition from level 1 to 2 was erratic rather than linear and straightforward. For instance, local participants were at first reluctant to engage in Start-Up Chile's programmes, regarding them as a source for entrepreneurship grants rather than as a platform on which they could interact with foreign entrepreneurs. These different expectations towards the programme between foreign and domestic entrepreneurs can hamper institutional changes. Despite this, the current study did observe institutional changes induced by resource injection.

Institutional theory can offer a meaningful explanation for the transition between levels 1 and 2. The creation of new institutions or the transformation of existing institutions requires legitimacy, which implies that specific actions are considered appropriate and desirable (Dacin and Scott 2002; Delmar and Shane 2004). According to institutional theory, 'institutional entrepreneurs' are agents with the resources and power to change institutions through entrepreneurial actions (Kalantaridis and Fletcher 2012; Levy and Scully 2007). They change institutions by creating a continuous flow of new ideas, theorising about these ideas, demonstrating that these ideas deserve attention, and disseminating these ideas in the public domain (Svejenova, Mazza and Planellas 2007). Our Santiago data suggest that transnational entrepreneurs have created numerous new entrepreneurial ideas, have validated their potential to generate success among local participants of the Santiago EE, and have disseminated these ideas within the ecosystem.

Pacheco et al. (2010) found that collective action, especially by interest groups, is an essential mechanism for institutional change. In Santiago, transnational entrepreneurs, who temporarily conducted entrepreneurial activities in the local EE, took collective action as a group of foreign entrepreneurs interested in start-up activities and interactions. Through various interactions, they transmitted their belief in the potential success of start-up activities within the Santiago ecosystem, which in turn stimulated institutional changes. Table 3 compiles a list of selected quotes for each category.

(Insert Table 3 here)

First, the entrepreneurial knowledge contributed by transnational entrepreneurs from the outside has multiplied and accumulated within the Santiago region over time, even after they departed. During their time in Santiago, transnational entrepreneurs transferred both explicit and tacit knowledge to the local community via workshops, events and entrepreneurship education. As a result of diverse forms of interaction, an increasing number of local entrepreneurs and ecosystem stakeholders have internalised and transferred important streams of this knowledge to others within the ecosystem. One example is CE-4, who participated in the first Start-Up Weekend organised by transnational entrepreneurs, attended a Start-Up Chile programme, and took over its organisational duties after the entrepreneurs departed.

Transnational entrepreneurs created much commotion in Santiago through their various interactions with the local community. The media recognised the value of such 'noise' and published numerous stories about start-up entrepreneurs, who were depicted differently from conventional small business owners in Chile. Over time, stories about Santiago's ecosystem development spread far beyond the start-up community. The accumulation of entrepreneurial knowledge in the region resulted in the successful education of the masses, who began recognising the value of start-up activities.

RP2-1: Transnational entrepreneurs' entrepreneurial knowledge is accumulated within the ecosystem over time through various autonomous interactions among actors, which enhances common understanding of start-up activities and contributions to society.

The second observable change in the Santiago EE was the emergence of an entrepreneurial culture in both the start-up community and Chilean society. In contrast to the conservative Chilean mindset (e.g. strong domestic orientation and risk-aversion; cf. Sepúlveda and Bonilla 2014b), transnational entrepreneurs have already stepped out of their comfort zone, crossing borders to pursue opportunities. From their global experience, they know that failure is inherent to entrepreneurial processes and serves only as a source for learning opportunities. This optimistic attitude towards entrepreneurial failures was transmitted to the local Santiago ecosystem.

Another cultural change perceived by respondents was an emergent 'go-global' mindset among local entrepreneurs. Transnational entrepreneurs contributed to the global connectivity of the Santiago EE and, as a result of various interactions within the ecosystem, Chilean entrepreneurs and other ecosystem actors have begun both perceiving global opportunities to be within reach and seeking internationalisation as a business expansion strategy. This cultural change was perceptible even outside the entrepreneur community, as notable success stories and entrepreneurial icons were disseminated by the media or in everyday interactions. Consequently, Chilean society's perceptions about entrepreneurs have drastically changed in the last decade. This finding is in line with those of Leatherbee and Eesley (2014), who revealed that social interactions between domestic and foreign entrepreneurs during Start-Up Chile improved Chileans' entrepreneurial behaviours.

Although elite students are more likely to prefer to benefit from their privilege and begin their careers at large companies, entrepreneurship has become a viable vocational option for many Chilean students. The social status elevation of entrepreneurs has given entrepreneurship, and the emerging EE, enhanced legitimacy (Díez-Martín, Blanco-González and Prado-Román 2016; Kibler, Kautonen and Fink 2014).

RP2-2a: By getting in touch with transnational entrepreneurs' risk-taking behaviours and strong international entrepreneurial orientation, local entrepreneurs and ecosystem actors develop an entrepreneurial culture in the region with a higher risk tolerance and a stronger global mindset than before.

RP2-2b: By witnessing emerging dynamics within the ecosystem, the social status and image of entrepreneurs has been elevated, which has in turn given the local entrepreneurial ecosystem legitimacy.

Third, the data reveal that interactions among entrepreneurs and related actors within the ecosystem have become more diverse and intensified over time due to the proliferation of stakeholders and the emergence of independent networks. Respondents recalled the situation around 2010, when only a few organisations offered support for entrepreneurial activities in Santiago. Along with the emergence of the Santiago EE, the number of support organisations, such as accelerators, incubators and investors, has increased, as has the variety of support they can offer. For instance, many universities in Santiago now 'have their own accelerators that are running correctly' (VC-1). There are now 'at least thirteen' (VC-2) accelerators in Santiago.

The initial dynamics on level 1 have also attracted private investors, like business angels and venture capitalists. Despite the favourable environment for investors, both formal and informal equity funding in Chile are regarded as rather incipient and precarious in Chile (Romaní, Amorós and Atienza 2008). Although foreign investors continue to observe the development of the Santiago ecosystem to evaluate its investment potential, some Chilean investors have already made small-scale investments in emerging start-ups. Brown and Mason (2017) argued that financial providers, including banks, venture capital firms, business angels and accelerators, are vital for enabling the transfusion of resources into successful start-ups and called them as 'ecosystem resource providers'. Roundy (2017) similarly explained that variations in the hybrid support organisations available in an EE can lead to the diversification of its entrepreneurial activities.

Another indicator of strengthened interactions are emerging, autonomous networks as sources of social capital for entrepreneurs and stakeholders (Alvedalen and Boschma 2017). However, the linkage between entrepreneurial stakeholders in Chile has remained underdeveloped, resulting in insufficient social capital in the Santiago ecosystem (Klerkx, Álvarez and Campusano 2015; Bernasconi 2005). Participants in this study commonly described Start-Up Chile as the largest and most active global network in Santiago's startup scene. Start-Up Chile has an extensive list of global alumni, many of whom remain connected via virtual channels (e.g. Facebook, WhatsApp) and often act as mentors for current participants of Start-Up Chile. Furthermore, Start-Up Chile is partnered with accelerators and incubators in many countries, thereby supporting the market entrance of its alumni. Apart from Start-Up Chile networks, some formal organisations are connecting ecosystem actors horizontally. For instance, ASECH (Associación de Emprededores de Chile), Chile Global Angels and ACVC (Associación Chilena de Venture Capital) are newly established formal networks aimed at connecting ecosystem stakeholders. Furthermore, ecosystem actors also organise small-scale networks of a more informal nature, such as learning groups, small workshops and groups of entrepreneurs from similar regions. The emergence of different types of social networks represents a critical step for ecosystem development, as the connectivity, density and strength of these networks among stakeholders determine the inclusivity of the EE (Neumeyer, Santos and Morris 2018).

Start-up events, such as meet-ups, are also a critical component in ecosystem development, as they facilitate various types of interactions and create 'weak ties' among actors (Granovetter 1973). These events also facilitate opportunities for vicarious learning, as entrepreneurs can share stories of their entrepreneurial processes among each other (Holcomb et al. 2009; Roundy 2019).

RP2-3: Initial dynamics within the ecosystem emerging through resource injections by transnational entrepreneurs multiply entrepreneurial resource providers, diversify ecosystem stakeholders, and lead to the emergence of autonomous networks and startup events, which in turn intensify and diversify the connectivity, density and strengths of interactions within the EE.

Fourth, in response to the initial dynamics created by transnational entrepreneurs on level 1, existing stakeholders, such as universities, financial institutions, media, corporate actors and policymakers, have recognised the potentials of start-ups. This has resulted in the re-definition of their role within the EE. Before the initial ecosystem dynamics became visible, universities, banks and private firms had been silent observers (Poblete

and Amorós 2013; Bernasconi 2005). Since they were not familiar with start-ups, such organisational actors took considerable time to define their new position as active agents within the ecosystem. While banks and companies are still prudent about start-up involvement, a few signs of their emerging interest were observable. It has become standard for local universities to offer entrepreneurship education and for media to frequently report local entrepreneurial success stories. The literature also suggests that universities and multinational enterprises play essential roles in the ecosystem (Ghio, Guerini and Rossi-Lamastra 2019; Bhawe and Zahra 2019).

RP2-4: The emergence of initial dynamics within the ecosystem convinced other institutional actors, such as universities, the government, private corporations, banks and media, of the potentials of start-ups, which led them to re-define their role to become more actively involved in the ecosystem.

Finally, we observed that the earlier dynamics triggered by transnational entrepreneurs in Santiago helped build confidence at the regional level. Departing from the strong domestic orientation of Chileans and their tendency to admire products, services and behaviours from outside the country (Gómez 2001), CORFO has made substantial efforts to build global connections by, for instance, attracting international venture capital (Agosin, Grau and Larrain 2010). This has opened the door to the internationalisation of Chilean entrepreneurial activities. In this respect, global interest in Chilean entrepreneurship policies and in the Santiago EE was sparked by the reputation of Start-Up Chile, brought about by extensive global marketing. Transnational entrepreneurs with the Start-Up Chile imprint also contributed to establishing the global reputation of the Santiago EE ('Chilecon Valley') by word of mouth. As a consequence, the global startup community has begun considering Santiago as one of the most rapidly growing EEs on a global scale (Genome 2017). When Chileans heard about the achievements of the Santiago ecosystem and witnessed the large number of transnational entrepreneurs coming to Chile to pursue entrepreneurial opportunities, they began to believe in the massive potential and uniqueness of the EE in their region. Subsequent exposure to diverse transnational entrepreneurs created an environment in which locals could experience entrepreneurial energy every day.

Notably, ecosystem stakeholders and entrepreneurs know full well the position of the Santiago ecosystem and pursue realistic goals by taking advantage of regional characteristics. For instance, transnational entrepreneurs and investors have repeatedly mentioned that Santiago is a perfect place to test minimum viable products before expanding to the wider Latin American market. They have also acknowledged other regional characteristics, like the supportive entrepreneurial policy and the low cost of developers and entrepreneurial human resources. The fact that Chile shares a time zone with North America represents a favourable condition for start-ups planning to enter the North American market. This awareness of regional strengths may be attributable to the perceptions of transnational entrepreneurs who have experienced different EEs worldwide. Transnational entrepreneurs have the cognitive flexibility to compare their transnational experiences (Rouse 1986) in Santiago with those of other ecosystems, which could in turn help them identify the unique strengths of the Santiago ecosystem.

RP2-5a: The increasingly global and domestic reputation of the local ecosystem, as well as the presence of numerous energetic transnational entrepreneurs, can help build regional confidence.

RP2-5b: Transnational entrepreneurs can recognise the strengths of an entrepreneurial ecosystem by comparing it with other ecosystems in other countries, which can help the region build substantial regional confidence.

On level 2, the community started working as an EE with the five institutional changes evoked by the initial dynamics on level 1. Although there have been some visible institutional changes, empirical evidence shows that the Santiago EE is not yet considered a self-sustaining ecosystem due to its heavy reliance on governmental support.

Level 3: On the Path to Establishing a Resilient Ecosystem

The Santiago ecosystem is now approaching a crossroads: It will either become a sustainable scale-up ecosystem, or it will not. This section presents the Santiago ecosystem at present and discusses how it can possibly step away from dependence on governmental support based on current empirical evidence.

The Santiago ecosystem is still entirely dependent on governmental support, as TE-7 mentioned in an interview: 'everything here is CORFO'. EE-7 carefully assumed that at least 90% of start-up funding is subsidised by the government. Start-Up Chile, which is fully backed by CORFO, has successfully attracted many transnational entrepreneurs. On the flip side, many transnational entrepreneurs would not have come to Chile without governmental incentives. Without CORFO, there would be far fewer transnational entrepreneurs in the ecosystem, which would in turn reduce the intensity of ecosystem interactions. More proof of the ecosystem's dependence is that most stakeholders rely on various policy instruments offered by CORFO. Interview respondents explained that many venture capitalists and other support organisations would not exist without governmental subsidies. CORFO's intensive start-up support measures thus represent a two-edged sword. On the one hand, such support was necessary to create initial dynamics. On the other, it created a public support-centred ecosystem in which entrepreneurs and stakeholders competed over the acquisition of public subsidies. Additionally, the availability of extensive equity-free investment can reduce the entrance motivation of angel investors, who offer equity funding. In this respect, Chile especially needs informal investors to overcome equity gaps (Romaní, Amorós and Atienza 2008).

The current situation of the Santiago EE can best be described as 'embryonic' according to the typology of Brown and Mason (2017). To become a resilient ecosystem, one which can 'weather challenges, such as the loss of a major anchor employer, an exogenous economic shock, or the change of a technological paradigm' (Spigel and Harrison 2018, 161), the Santiago EE must therefore take additional steps.

First, some large exits of so-called 'blockbuster entrepreneurship' (Brown and Mason 2017) are needed in the Santiago ecosystem. Such major exits would not only represent start-up success stories in the region but would also stimulate entrepreneurial recycling. Moreover, the region needs both successful and failed narratives of mature, skilful, highly qualified and experimental start-ups, which would generate rich entrepreneurial knowledge on the regional level and encourage the next generation to 'recycle' such knowledge. This knowledge accumulation process entails an important resource flow within ecosystems (Spigel and Harrison 2018; Roundy 2019). Furthermore, the creation of some visible global success stories is a prerequisite for attracting transnational entrepreneurs and foreign entrepreneurial resource providers (Brown and Mason 2017).

Second, interactions and networks must be both more diverse and coherent to enact and maintain the resilience of the EE (Roundy, Brockman and Bradshaw 2017) – but they also need to be developed autonomously. One type of interaction that is critical to ecosystem development but is currently insufficient in the Chilean context is the one between private corporations and the start-up scene. Although Chilean private firms have started to change their perceptions, they generally remain reluctant to take concrete actions in start-up engagement through, for instance, corporate venture capital and accelerators (Kanbach and Stubner 2016; Kupp, Marval and Borchers 2017). As long as corporate actors do not proactively participate in entrepreneurial activities in the region, its ecosystem will not reach a critical mass of interactions (Ghio, Guerini and Rossi-Lamastra 2019).

Third, it is essential that CORFO revises the role and strategy of public actors in the ecosystem. While CORFO's political measures have achieved specific results in the early phase of ecosystem evolution, it is meaningful to critically question their current and previous measures according to the evolutionary stage of the Santiago ecosystem. In the initial stage, the primary political objective was to generate a greater number of entrepreneurial activities, which was outstandingly achieved. However, the numerous entrepreneurs and stakeholder interactions in the ecosystem cannot survive without governmental support. Thus, the next vital step is to switch the political focus to the creation of high-profile start-ups, which can facilitate entrepreneurial recycling, to make existing actors and stakeholders less dependent on governmental subsidies, and to encourage corporate actors to be more active within the EE.

RP3: To become a resilient ecosystem, the ecosystem must facilitate mechanisms of entrepreneurial recycling as well as diverse and coherent interactions with strong corporate participation. In this process, public actors can continuously re-define their roles and strategies according to the ecosystem's evolution.

Conclusion

Research Contribution

The findings of this study contribute to recent scholarly discussions on ecosystem evolution in several ways. The mechanisms of resource injections presented in this study focus on 'temporary imports' of transnational entrepreneurs. The results offer novel insights, particularly regarding the early evolution of EEs and the role the national government may play in different phases. At the same time, this study also discussed critical aspects of this 'top-down approach' to governing EEs (Colombo et al. 2019). The empirical case revealed an ecosystem dilemma, as the region cannot sustain the driving force of ecosystem evolution without entrepreneurial resources artificially created by public support. The consequent over-reliance on policy instruments creates a vicious cycle, one which strengthens the dependency relationship and prevents the region from transforming into a self-sustaining and resilient ecosystem.

Notably, one important side-story relates to a particular type of ecosystem actor – namely a public accelerator – that coordinates the flow of resources contributed by transnational entrepreneurs. The public accelerator can be considered an 'anchor tenant', which refers to a central player spurring ecosystem creation and development (Colombelli, Paolucci and Ughetto 2019). While different types of individuals and organisations (business angels, universities, corporates) can become anchor tenants to facilitate resource

injections, the strategic aims of public accelerators have a particular synergy, as they seek to stimulate entrepreneurial activities in a certain territory to develop the regional economy (Aernoudt 2004; Pauwels et al. 2016). The import of entrepreneurial resources alone does not necessarily evoke institutional changes and ecosystem evolution, since entrepreneurial resources need to be transferred to other ecosystem stakeholders and must be embedded in institutional environments. Public accelerators can coordinate interactions to efficiently disseminate resources and multiply the regional entrepreneurial resource base.

Practical Implications

Our research implies that political initiatives can attract transnational entrepreneurs who could contribute entrepreneurial resources to a region. To facilitate the successful emergence of initial dynamics, policymakers should be aware of some issues. First, a larger number of transnational entrepreneurs is needed to create a critical mass of resources. Second, policymakers should offer soft-landing support, as well as community and networking services, so that transnational entrepreneurs can overcome institutional barriers. Third, transnational entrepreneurs should have the capacity to interact with the local community to transfer their resources. This study also highlights the importance of anchor tenants as facilitators and coordinators of interactions among ecosystem stakeholders. In the presented case, the anchor tenant was Start-Up Chile, a public accelerator. Policymakers should build support organisations, such as public accelerators, with the specific objective of developing a regional EE.

Limitations

There are several limitations to our study. First, since our research was conducted in a single ecosystem, we could not examine regional differences. Second, although we collected data at three different time points (2015, 2017 and 2019), our study neither adequately considered developments after 2017 nor conducted a longitudinal analysis, which would have enabled us to trace ecosystem evolution from 2010. We instead relied on retrospective views from interviewees and secondary data. Third, this study employed a snowballing strategy for data collection, which may have caused selection bias among the respondents. EX-1 pointed out the potential risk of including multiple interviewees who were involved in Start-Up Chile or with other policy instruments. Fourth, the intercultural setting created an unavoidable risk for biases and missing information due to linguistic barriers. Finally, this study used Start-Up Chile as a focal policy instrument for investigation, even though CORFO has been offering a wide range of entrepreneurial support. Due to the complex nature of EEs, isolating the most influential mechanisms in their evolution is nearly impossible, and as such this study should not be regarded as comprehensive with respect to all the factors contributing to ecosystem development.

Future Perspectives

We recommend that future research investigates mechanisms of ecosystem emergence or resource injections in other newly emerging resource-scarce ecosystems and under different institutional conditions, such as rural areas in developed countries or EEs in countries with weak institutions. Furthermore, we encourage further investigation of the future development of the Santiago EE, as it is now entering a critical phase. Should the region overcome its resiliency dilemma and transform from an artificially created to a

self-sustaining ecosystem, then future research on this transformation could offer valuable insights for policymakers in emerging countries as well as for EE researchers.

This study revealed the critical role of ecosystem governance through top-down approaches. Some interesting follow-up questions in this regard include: How do private anchor tenants govern an EE through a top-down approach? In which ways can EEs be governed? Can future research specify the nature and drivers of ecosystem evolution, and can such research determine the strength of the imprint of a given regional structure when it comes to resource injection by transnational entrepreneurs as well as how such injections are used to evoke momentum in EEs?

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Table 1. Overview of the Interviewees

ID	Type ¹	Gender	COO ²	Role in Santiago Ecosystem	Business & Comments
TE-1	TE	Male	India	Former Start-Up Chile Participant	Robot manufacturing
TE-2	TE	Female	Romania	Start-Up Chile participant	Cooking app
TE-3	TE	Female	Columbia	Start-Up Chile participant	Healthy snack
TE-4	TE	Female	USA	Start-Up Chile participant	Market analysis software
TE-5	TE	Female	UK	Start-Up Chile participant	Online education
TE-6	TE	Female	Peru	Start-Up Chile participant	Health
TE-7	TE	Female	Brazil	Start-Up Chile participant	Nano-credit in LATAM
TE-8	TE	Female	Columbia	Start-Up Chile participant	Sales platform for start-ups
TE-9	TE	Female	USA	Start-Up Chile participant	B2B network platform
TE-10	TE	Male	USA	Start-Up Chile participant	Mentor platform
TE-11	TE	Male	Venezuela	Start-Up Chile participant	Educational toy
TE-12	TE	Male	South Africa	Start-Up Chile participant	Game technology
TE-13	TE	Female	USA	Start-Up Chile participant	Postcast Media
TE-14	TE	Male	New Zealand	Fundacion Chile start-up	App for school bus
CE-1	CE	Male	Chile	Start-Up Chile participant	Legal app
CE-2	CE	Male	Chile	Start-Up Chile participant	Fin-tech
CE-3	CE	Male	Chile	Former Start-Up Chile participant	Start-up finance
CE-4	CE	Male	Chile	Startup Weekend organizer	
EE-1	EE	Female	Chile	SUP director	
EE-2	EE	Female	Chile	SUP director	
EE-3	EE	Female	Germany	SUP intern	
EE-4	EE	Male	Mexico	SUP accelerator executive	
EE-5	EE	Male	Chile	SUP founder	
EE-6	EE	Male	Chile	Former SUP employee	Governmental accelerator in LATAM
EE-7	EE	Male	New Zealand	Former SUP employee	Founder of co-works in Santiago
EE-8	EE	Male	Chile	Wayra Chile executive	
EE-9	EE	Female	Chile	INNOVO	
VC-1	VC	Male	Chile	Magma VC	
VC-2	VC	Male	Chile	Fundacion Chile Manager	
VC-3	VC	Male	Chile	Chile Ventures	
GV-1	GV	Male	Chile	CORFO	
GV-2	GV	Male	Chile	CORFO	
UN-1	UN	Female	Chile	Universidad Adolfo Ibáñez	Research on GEM
UN-2	UN	Male	Chile	Pontificia Universidad Católica de Chile	Research on Start-Up Chile and CORFO
EX-1	EX	Male	Argentina	Expert in Entrepreneurial Ecosystem	

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¹ TE= Transnational Entrepreneurs; CE= Chilean Entrepreneurs; EE=Ecosystem Actors (e.g. accelerators, incubators); VC=Venture Capital; GV=Governmental Representatives; UNI= University Researchers; EX= Expert

² COR= Country of Origin

Table 2. List of Selected Quotations (Level 1)

	Accessible entrepreneurial	Experience with the seed phase	"During the program what happens was we made our first biggest sale in Dubai. So, we sold around 500 kits to one of the government authorities, so this made us back to Dubai and make things over there" (TE-1) "And after that, I went to like from one day to another, I was the most famous entrepreneur in my country" (TE-9) "Foreigner founders had more experience in funding, in seed funding, having gone through around and all that. I guess that is also a difference" (CE-2)
RP1-1		Experience with the dynamic start-up process	"Before the hardware company, we have gone through like a lot of ups and downs. The thing is usually like making the product is the easiest thing. Converting the product into MVP is like hard labour." (TE-1) "I started a bakery there, and it was very successful. We initially started with a storefront and a production centre simultaneously, so it was a lot of workloads and then two years after we decided to change our business model and close the storefront and then had only the production centre." (TE-3)
		Start-up as a vocational choice	"We already have people understanding entrepreneurship as a valid way of making a living at this." (VC-1) "A lot of young people in this generation, for me is amazing to know people that are 21 for example and they are already like doing start-ups. When I was 21, I was starting and thinking of getting a job in a company (), so yes one can learn a lot about those experience." (CE-2)
	Capabilities to explore and exploit unique opportunities	Bring business ideas to the market	"I started seeing in Latin America there was a huge phenomenon that is becoming like at really high rates, one of the most obese you know like countries in the world. Chile is the 4th Colombia is going the same direction, we have Costco now like it is crazy the amounts of junk that is sold everywhere. So, I put myself a mission, and it is to change a little bit the whole snacking ecosystem and make it healthier. So, then I realized I could not work for someone and that I had to start my business." (TE-3)
RP1-2		Discovery of opportunities in the market	"Like maybe people do not have the right type of phones or whatever words Chile seems very developed but then with these random gaps that are just like wide open and you can see what is worked in America you can just copy. So, it seems that there is much opportunity, for example, the banking system is crazy, so there is much opportunity for disruption which we like. () Chile seems full of opportunity for entrepreneurs, I think because it's a highly developed economy and everyone has smartphones and you know they have umber and things but then there is also a lot of things that are still quite behind (TE-5)." "I saw many failures in co-working here in Chile. I saw a huge opportunity to build this kind of a platform that could eventually support entrepreneurs (EE-7)."
		Alternative ways to exploit opportunities	"I think actually the main impact is to help Chilean people and Chilean entrepreneurs to understand the global environment and to get more global and also to like to develop better business. So, exchange experience with Chilean entrepreneurs" (TE-9) "And somebody that come from any other country, normally they can see I mean a different kind of approaches to some of the markets." (EE-4)
	on of cnowledge	Start-up know-how	"And they have this fail fast way of thinking that worked like we went to the markets, failed, and we tried with bars instead of movies, failed. And then we tried with restaurants, failed, tried with adventures parks, failed. Okay. Thatthere is this one market we are being avoiding because it's too big, too concentrated and you're never going to have a chance in there. Like all in. That's our last chance. We went to our tickets and it worked. It was likeit was the best thing we did and the best thing actually was that they told us to destroy our platform. So, we destroyed our platform and made like a shitty landing pagevery verylike I would think it was a fraud because our prices were like 7-5% discounted. And the page was very ugly. So, if I was a client I would never buy in that. But somehow people did buy. It worked. And now we are here." (TE-9)
RP.1-3		Entrepreneurial knowledge	"There was some travelling also from the entrepreneurs, they went to the north and to the south. While they were in the south, they will give talks or lectures at the different universities in different areas. That's how it spreads." (VC-1) like how to manage the problems that we faced during the logistics happened. Like whenever things like custom stuff and things we don't calculate initially. We discussed about those things." (TE-1)
		Start-up mindset	"And I guess the best advice that he gave us was to stay focused and develop one thing right and then maybe think. If you start like thinking about everything you could do, you will finally see that you don't do anything. I guess that was the best thing he could tell us, and I think it's always good to have the opinion of the third party, that is from the outside and even better if you have experience and the kind of experience he has." (CE-2)
RP1-4	Global	Global business know-how	"So, you think that you're doing something super new and then they tell another tool or another kind of software that you can use or something, they are like opening your mind to another thing. I think that's very valuable and also, they give you a hint for the global market. () So, you're always thinking a lot about Spanish speaker or Latin American countries and all of that. And they are like 'Okay but how can this work in Europe or how can this work in Asia' and you are like 'Ah no idea'. I don't know if they have that problem or not so that helps a lot (TE-8)."
~		Experience in internationalization	"The wideness of their ambitions. Nobody comes to Chile because it's a big market. So nobody that comes to Chile to start the company, wants to make happen just in Chile." (VC-2)

Table 3. List of Selected Quotations (Level 2)

	Accessible entrepreneurial role model	Experience with the seed phase	"During the program what happens was we made our first biggest sale in Dubai. So, we sold around 500 kits to one of the government authorities, so this made us back to Dubai and make things over there" (TE-1) "And after that, I went to like from one day to another, I was the most famous entrepreneur in my country" (TE-9) "Foreigner founders had more experience in funding, in seed funding, having gone through around and all that. I guess that is also a difference" (CE-2)
RP1-1		Experience with the dynamic start-up process	"Before the hardware company, we have gone through like a lot of ups and downs. The thing is usually like making the product is the easiest thing. Converting the product into MVP is like hard labour." (TE-1) "I started a bakery there, and it was very successful. We initially started with a storefront and a production centre simultaneously, so it was a lot of workloads and then two years after we decided to change our business model and close the storefront and then had only the production centre." (TE-3)
		Start-up as a vocational choice	"We already have people understanding entrepreneurship as a valid way of making a living at this." (VC-1) "A lot of young people in this generation, for me is amazing to know people that are 21 for example and they are already like doing start-ups. When I was 21, I was starting and thinking of getting a job in a company (), so yes one can learn a lot about those experience." (CE-2)
	Capabilities to explore and exploit unique opportunities	Bring business ideas to the market	"I started seeing in Latin America there was a huge phenomenon that is becoming like at really high rates, one of the most obese you know like countries in the world. Chile is the 4th Colombia is going the same direction, we have Costco now like it is crazy the amounts of junk that is sold everywhere. So, I put myself a mission, and it is to change a little bit the whole snacking ecosystem and make it healthier. So, then I realized I could not work for someone and that I had to start my business." (TE-3)
RP1-2		Discovery of opportunities in the market	"Like maybe people do not have the right type of phones or whatever words Chile seems very developed but then with these random gaps that are just like wide open and you can see what is worked in America you can just copy. So, it seems that there is much opportunity, for example, the banking system is crazy, so there is much opportunity for disruption which we like. () Chile seems full of opportunity for entrepreneurs, I think because it's a highly developed economy and everyone has smartphones and you know they have umber and things but then there is also a lot of things that are still quite behind (TE-5)." "I saw many failures in co-working here in Chile. I saw a huge opportunity to build this kind of a platform that could eventually support entrepreneurs (EE-7)."
		Alternative ways to exploit opportunities	"I think actually the main impact is to help Chilean people and Chilean entrepreneurs to understand the global environment and to get more global and also to like to develop better business. So, exchange experience with Chilean entrepreneurs" (TE-9) "And somebody that come from any other country, normally they can see I mean a different kind of approaches to some of the markets." (EE-4)
	on of cnowledge	Start-up know-how	"And they have this fail fast way of thinking that worked like we went to the markets, failed, and we tried with bars instead of movies, failed. And then we tried with restaurants, failed, tried with adventures parks, failed. Okay. Thatthere is this one market we are being avoiding because it's too big, too concentrated and you're never going to have a chance in there. Like all in. That's our last chance. We went to our tickets and it worked. It was likeit was the best thing we did and the best thing actually was that they told us to destroy our platform. So, we destroyed our platform and made like a shitty landing pagevery verylike I would think it was a fraud because our prices were like 7-5% discounted. And the page was very ugly. So, if I was a client I would never buy in that. But somehow people did buy. It worked. And now we are here." (TE-9)
RP.1-3		Entrepreneurial knowledge	"There was some travelling also from the entrepreneurs, they went to the north and to the south. While they were in the south, they will give talks or lectures at the different universities in different areas. That's how it spreads." (VC-1) like how to manage the problems that we faced during the logistics happened. Like whenever things like custom stuff and things we don't calculate initially. We discussed about those things." (TE-1)
		Start-up mindset	"And I guess the best advice that he gave us was to stay focused and develop one thing right and then maybe think. If you start like thinking about everything you could do, you will finally see that you don't do anything. I guess that was the best thing he could tell us, and I think it's always good to have the opinion of the third party, that is from the outside and even better if you have experience and the kind of experience he has." (CE-2)
RP1-4	Global	Global business know-how	"So, you think that you're doing something super new and then they tell another tool or another kind of software that you can use or something, they are like opening your mind to another thing. I think that's very valuable and also, they give you a hint for the global market. () So, you're always thinking a lot about Spanish speaker or Latin American countries and all of that. And they are like 'Okay but how can this work in Europe or how can this work in Asia' and you are like 'Ah no idea'. I don't know if they have that problem or not so that helps a lot (TE-8)."
<u> </u>		Experience in internationalization	"The wideness of their ambitions. Nobody comes to Chile because it's a big market. So nobody that comes to Chile to start the company, wants to make happen just in Chile." (VC-2)

Figure 1: Overview of Descriptive Codes

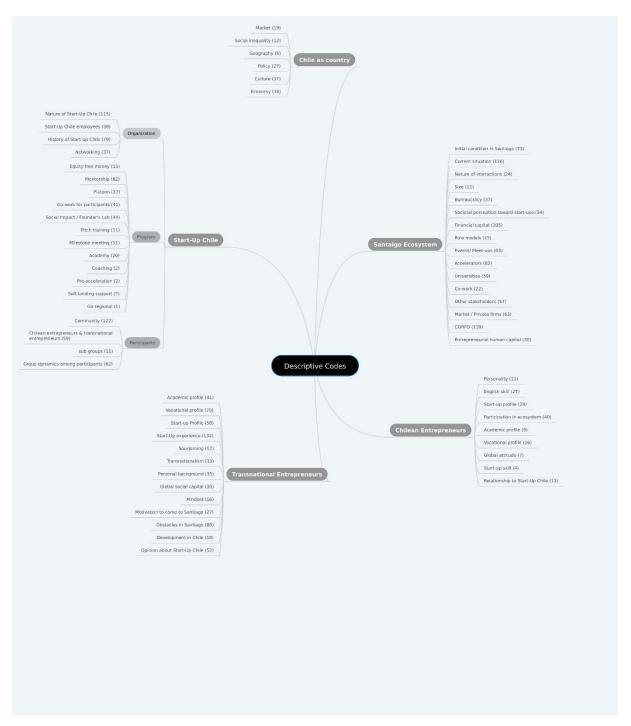


Figure 2: Overview of the Mechanism Codes (Level 1)

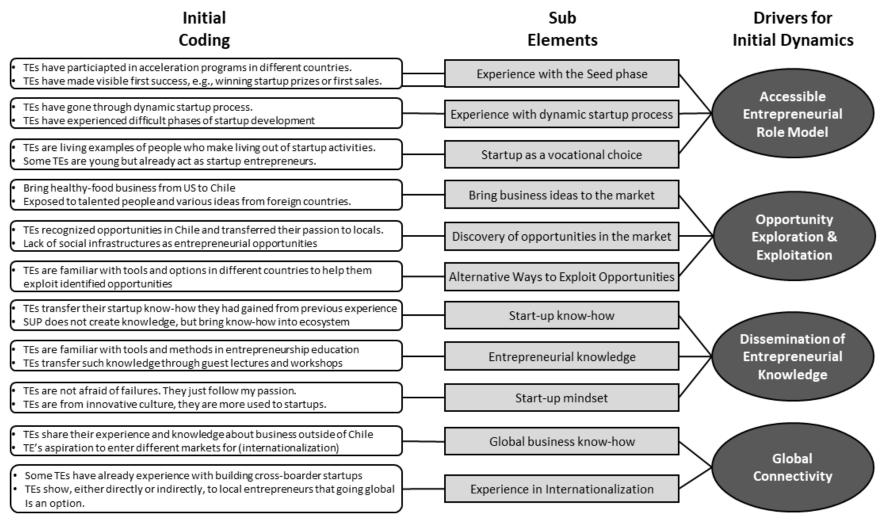


Figure 3: Overview of the Mechanism Codes (Level 2)

Initial Coding	Sub Elements	Theoretical Dimensions
No one knew about the world of startups 10 years ago. Educating mass is the first step to create an entrepreneurial ecosystem.	Educating the mass	Accumulation of Entrepreneurial
Entrepreneurship education takes place in different forms and occasions. E.g., universities, incubators, accelerators, workshops, and informal settings	Entrepreneurship education	Knowledge
TEs transfer the mindset that failure is a source of learning Local entrepreneurs see how TEs fail over time and do not mind at all	Positive perception toward failure	
Students used to consider only large firms, now even kids want to become entrepreneurs Chilean rapidly developed a positive perception toward entrepreneurship	Social status of entrepreneurship	Fostering Entrepreneurial Culture
TEs encourage university to go global to grasp opportunities Local entrepreneurs start perceiving internationalization as an option	Go-global mindset	
 In 2010, no one knew what accelerators are. Now there at least 13 of them. There are now co-works and venture capitals everywhere. 	Multiplication of resource providers	
Co-works with different target groups Many programs with different focuses.	Diversification of stakeholders	Diversification & Intensification of
SUP domestic and global network Formal associations for entrepreneurs and investors and informal networks	Emergence of autonomous networks	Interactions
Many events and meetups which connect actors within the ecosystem Co-work as connecting points to other ecosystem actors	Events / Meet-ups	
It has become normal for local universities to offer entrepreneurship education Universities have become proactive in facilitating accelerators and incubators	Entrepreneurial universities	
Local banks start considering startup-financing Local banks organize business idea competitions	Banks' Startup finance	Re-defining Roles of Ecosystem
Media frequently features successful entrepreneurs Media reports the global interest in Chilean startup scenes	Media Presence	Stakeholders
 Corporates start thinking how they can engage in startup scene Corporates start thinking to develop VC and accelerators 	Startup engagement in private sector	
'Chilecon Valley' has attracted global interest TEs spread the world and form a global network connected to Santiago	Global reputation	
Surrounded by many highly mobile TEs with passion and energy Witnessed the growth process of many startups	Perceptible active energy	Building Regional Confidence
Entrepreneurs and actors are aware of the uniqueness of the ecosystem E.g., Santiago is the best location for testing MVP and expanding to LATAM	Acknowledgement of regional uniqueness	Sommerice

Figure 4: The Three-Step Model for Resource Injection for the Early Ecosystem Evolution No Visible Dynamics of Level 0 Entrepreneurial Ecosystems Accessible Creation of Initial Dynamics through connectivity Global Role Transnational Entrepreneurs Model Resource Injections by Creation Level 1: of Initial **Dynamics** Capabilities Entrepre. to explore neurial Knowledge and exploit Accumulating of Initial Dynamics evoke institutional Entrepreneurial Knowledge Fostering Building Entrepreneurial Regional Culture Changein Confidence Level 2: **Institutions** Diversification Re-defining and roles of Intensification stakeholders of interactions Entrepre-Diverse & Timely Insuffient neurial coherent poltiical measures ecosystem or not? recycling interactions support Self-sustaining Level 3: Self-Dependent sustaining ecosystem ecosystem 35 = Entrepreneurial Ecosystem = Geographic Region ← = Transnational Entrepreneurs