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Abstract*

This paper identifies the main characteristics of a subset of Chilean firms that has the potential to positively impact the economy through employment generation. The study also verifies whether their traits systematically differ from those of other firms. Based on a mean comparison exercise, the results show that this particular business population is rather heterogeneous in nature and in terms of the impact it has over the economy—at least in terms of job creation. The entrepreneurs within this subset exhibit some varying traits, with education being the most important. Overall, this paper demonstrates that identifying highly potential ventures is as difficult as locating Wally in a flea market: they do not represent more than 15 percent of the business population, implying that horizontal policies to promote business development may be diluted within a population of low-performing businesses.

JEL codes: J21, L26, O17
Keywords: entrepreneurship; high-growth firms; self-employment; entrepreneurial traits

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1 INTRODUCTION

The aim of this paper is to find Wally among Chilean entrepreneurs;[1] that is, to identify the main characteristics of high potential young firms and of the entrepreneurs that drive this rather select group of enterprises. In particular, the study aims to verify whether systematic differences can be observed between high potential young firms and incumbent ones in Chile. This will shed light on what characterizes this small subset of firms to contribute to the socioeconomic development of Chile. It may be of use to policymakers when defining the objectives of entrepreneurship policy.

The interest of scholars and policymakers in entrepreneurial activity has its roots in the role this (theoretically) plays in economic growth, since it is considered a vehicle for innovation and change and, therefore, a conduit for knowledge spillover (Braunerhjelm et al., 2009; Carree and Thurik, 2010). The contribution of entrepreneurial activity to economic growth, however, holds as long as the complex process of entrepreneurship leads to the emergence of pioneer organizations that are sufficiently fit to defeat the high odds of exit and eventually survive. In theory, this subset of innovative pioneers has the potential to create new market niches and to challenge the inertia of industries through disruptive innovations, thus generating disequilibrium and subsequent economic development à la Schumpeter Mark I.[2]

From an empirical point of view, however, this type of successful entrepreneurship is more an exception than the rule. Thus, caution must be taken to avoid falling into the composition fallacy—that is, the tendency to assign the benefits of entrepreneurship to the average firm (Nightingale and Coad, 2013). In fact, the typical startup is not innovative, creates few jobs, and generates little wealth (Shane, 2009).

This paper begins with the premise that entrepreneurship is a multifaceted concept that includes a population of very heterogeneous agents (Vivarelli, 2013). Different types of

[1] Wally is the main character in a children's book series, *Where is Wally*, created by British illustrator, Martin Handford. The series consists of books with detailed, two-page spreads with illustrations depicting dozens or more people doing a variety of amusing things at a location. Readers are challenged to find the character, Wally, who is hidden within the crowd. Wally's distinctive red-and-white-striped shirt, bobble hat, and glasses make him slightly easier to recognize, but many of the illustrations contain red herrings involving the deceptive use of red-and-white striped objects (Source: Wikipedia). One is invited to play and locate Wally throughout the reading.

[2] See Landström (2005) for a discussion on Schumpeter's view on entrepreneurship and the differences between the Schumpeterian Mark I and Mark II regimes of economic development.

entrepreneurs coexist within the ecosystem, and their impact over the economy in terms of wealth, job creation, and economic diversification is expected to differ (Baumol, 1990).[3] The next section includes a review of the literature about the concept of entrepreneurship, followed by a discussion on what is meant by entrepreneurship in this paper. Subsequently, the databases that have been used to characterize entrepreneurship in this study are described. The following two sections discuss the main results of the characterization of entrepreneurs and firms, respectively. The last section provides concluding remarks.

2 LITERATURE REVIEW: DEFINING BOUNDARIES ON THE CONCEPT OF ENTREPRENEURSHIP

2.1 A Theoretical Approach to Entrepreneurship

From a theoretical perspective, the field of entrepreneurship studies associates this phenomenon with innovation (Schumpeter, 1934),[4] profit-making opportunity recognition and exploitation (Kirzner, 1973 and 1997; Shane, 2003), and uncertainty bearing (Knight, 1921). Joseph Schumpeter, one of the most influential scholars of entrepreneurship and innovation theory, viewed economic development as the output of a process of creative destruction resulting from the introduction of new combinations of existing productive factors. These new combinations would displace old ones, generating a situation of permanent disequilibrium in the economy. Schumpter (1934), in his book *The Theory of Economic Development* (first published in 1911), considered the entrepreneur as the main actor behind the carrying out of these new combinations—or innovations—which would be embodied in new companies that would co-exist and compete towards elimination with old ones in a very evolutionary fashion (Nelson and Winter, 1985).

According to Schumpeter (1934), the *entrepreneurial function* (i.e., carrying out of new combinations) is a process that can be performed by a special type of person in terms of conduct,

[3] For example, Baumol (1990) distinguished between productive, unproductive, and destructive entrepreneurs, depending on the nature of their objectives and their subsequent contribution to society.
[4] See Landström, Harirchi and Aström (2012) for a brief review on the evolution of the entrepreneurship field of research. See Landström (2005) for a longer review on the pioneers who have shaped the evolution of this academic field.

psychological traits, and motivations.[5] This triggered, in the late 1950s and early 1960s, the interest of researchers in the relationship between the personality traits of this special kind of businessmen and venture creation and success.[6] One of the most influential researchers in this strand of literature is the psychologist, David McClelland, who—in his book, *The Achieving Society*, published in 1961—demonstrated the link between the need for achievement in societies and economic development. A person's motivation for achievement is related to the need for success and goal achievement, which typically come together with internal locus of control and self-efficacy. McClelland argues that entrepreneurs driven by the need for achievement could contribute significantly to economic growth through the ventures they pursue.[7]

Critiques to the trait approach to entrepreneurship emerged in the late 1980s as the literature did not provide consistent evidence on differentiating the features between entrepreneurs and nonentrepreneurs, thus failing to provide a consensus on a generic definition of the entrepreneur from a personality point of view (Brockhaus and Horwitz, 1986; Gartner, 1988). This lack of consensus stemmed from the fact that there is no such typical entrepreneur profile, since the diversity among entrepreneurs can be even larger than the differences between entrepreneurs and nonentrepreneurs (Gartner, 1985). Gartner (1988) also criticized the excessive focus on who is the entrepreneur, and argued that to understand new venture creation, the focus should be on what the entrepreneur does, suggesting a behavioral approach to address this complex phenomenon. Others, however, still saw value in the trait approach, arguing that the whole is extremely complex and any attempt to understand it needs first to tackle the understanding of its parts (Carland, Carland and Hoy, 1988).

Other scholars rooted in the Austrian school of thought, such as Israel Kirzner, saw the function of opportunity recognition at the core of entrepreneurship. Kirzner (1973, 1997) viewed

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[5] According to Schumpeter (1934), the motivations of agents to carry out the entrepreneurial function are, basically, (i) the dream and will to found a private kingdom especially attractive for those who have no other way of achieving social distinction; (ii) the will to conquer and impulse to fight, to prove oneself superior to others, and to succeed for the sake of success and not for the fruits of success; and (iii) the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity. The entrepreneur seeks out difficulties, changes in order to change, and sees delight in ventures.

[6] See Rauch and Frese (2007) for a meta-analysis on the literature about the relationship between business owners' personality traits and business creation and success.

[7] See Landström (2005) for a discussion on the contribution of David McClelland to the field of entrepreneurship studies.

the entrepreneur as a unique type of individual in terms of the capacity to discover and exploit profitable market opportunities overlooked by others. He did not assign particular personality traits to this character as Schumpeter did, but emphasized that alertness, foresight, and further capabilities are required to detect valuable opportunities and to exploit them. As opposed to Schumpeter, who saw the disequilibrium generated by the entrepreneurial function as the main driving force behind economic development, Kirzner's approach considered entrepreneurs as a mechanism to drive the economy towards equilibrium through arbitrage, which does not involve an innovative component per se. Furthermore, the fact that most entry decisions turn out to be mistakes that are followed by rapid exit suggests that entrepreneurship may multiply inefficiencies rather than mitigate them, moving the economy into further disequilibrium (Nightingale and Coad, 2013).

The Knightian school of thought, on the other hand, assigned another function to entrepreneurs: to bear the uncertainty derived from exploiting opportunities. Knight's main contribution to the theory of entrepreneurship is through his distinction between risk and uncertainty (Knight, 1921). Unlike risk, uncertain situations cannot be assigned probabilities of occurrence, as they are the outcome of a unique event and there is no prior knowledge that can inform probability estimation. The entrepreneur is, again, a special type of person who is able to deal with uncertainty and make decisions under this scenario. Specific personality traits have been related to this ability to bear uncertainty, such as self-confidence and assertiveness.

The entrepreneurial function can also be understood as a conduit facilitating the spillover and commercialization of new knowledge (Audresch and Keilbach, 2007). This approach has important implications for endogenous growth models, since knowledge and human capital are a necessary but insufficient condition for economic growth, as knowledge is not automatically transformed into economic knowledge. Entrepreneurial activity can then be seen as a mechanism through which knowledge is transformed into an economically relevant output and thus positively impact growth rates. Braunerhjelm et al. (2009) provide empirical evidence supporting causality from entrepreneurial activities to growth.

Although the above-mentioned approaches differ in the core functions assigned to entrepreneurs, they all agree on the contribution of this special character to economic development. Baumol (1990) to some extent, however, disagreed and pinpointed through

historical evidence that not all entrepreneurs are innovative and constructive. On the contrary, certain entrepreneurial practices, such as rent-seeking, can be considered unproductive for society. According to Baumol, the emergence of these practices is a consequence of the pay-off structures within a specific society, determining the allocation of these activities between productive and unproductive ones. Furthermore, because the goals of individuals and culture are difficult for policymakers to change, the focus should be in modifying the rules of the game (e.g., antitrust rules), such that the structure of rewards promotes productive entrepreneurship (Sautet, 2011).

From an empirical perspective, the concept nowadays encompasses a broad range of different types of ventures and, therefore, some distinctions should clearly be made. For example, Aulet and Murray (2013: 2) picture this with the following example:

> Steve decided it was time to follow his dream and set up a pizza restaurant. He would specialize in organic ingredients, a painstakingly designed recipe for the crust, and an overall commitment to the environment. For Steve, the restaurant was an opportunity to work again after a three-year period without full-time employment.
>
> Excited by the possibilities of her recent research results, Karen, a chemical engineering professor, decided it was time to file for patents on her new surface chemistry technology and create a business with a faculty colleague and two graduate students. Their strategic intent was to develop paper-thin solar sheets for a wide range of applications.
>
> These two individuals have something important in common: they are entrepreneurs who have identified a new opportunity and are pursuing that opportunity, regardless of the resources they currently have available. **There the similarities end**.

Both entrepreneurs differ in many respects. They have different aspirations in terms of the markets they are aiming for (local versus global); they will need different resources (e.g., in terms of the number of jobs created and the type of labor qualifications); the innovation component differs (the second one is based on high-tech); and more importantly, the potential impact in the economy is probably much larger in the second case (Aulet and Murray, 2013).

Shane (2009) argues that policymakers often think that creating more startup companies will transform depressed economic regions, generate innovation, and create jobs. He argues, however, that this view is flawed because the typical startup is not innovative, creates few jobs, and generates little wealth. In fact, the literature has emphasized that a very small proportion of startups are able to generate the impact expected from entrepreneurship. They have been

nicknamed *gazelles*—high-impact firms or high-growth firms—among other names, and an increasing interest has emerged regarding the traits of this particular subset of enterprises.

A recent theoretical literature review about high impact entrepreneurship (HIE), made by Acs (2008), defined that the main trait that distinguishes this type of venture from others is its leveraged nature. Acs argues that "the goal of high impact entrepreneurship is more than growth and change—it is different from other domains primarily because it operates with leverage as its outcome. (…) HIE is innovation driven, operates in a highly uncertain environment and is Schumpeterian in outcome." (p.8). A leveraged startup is a firm engaged in the act of innovation: the development and commercialization of disruptive breakthroughs that shift the wealth creation curve at the industry and individual levels. These startups are growth businesses, not job replacement businesses. The leveraged startup, by definition, is a new organization founded by an entrepreneur who has identified an opportunity and has decided to act on it (Acs, 2008). Thus Acs, in a way, integrates the Schumpeterian, Kirznerian, and Knightian entrepreneurial functions of innovation, opportunity recognition and exploitation, and uncertainty bearing, respectively, in an all-encompassing definition of high-impact entrepreneurship.

2.2 An Operational Approach to Entrepreneurship

An operational approach to define entrepreneurship typically considers enterprise performance variables, such as growth in employment and turnover during a delimited time span. Age and size are also used to define boundaries between categories.

For instance, the Organisation for Economic Co-operation and Development (OECD) and Eurostat (see Table 1) define high-growth enterprises as firms that show an average annualized growth in employees (or in turnover) greater than 20 percent a year over a three-year period and with 10 or more employees at the beginning of the observation period. The size threshold is set to avoid the small enterprise bias, since a firm growing from one to two employees will automatically fall under the category of a high-growth company, although its impact over the economy is negligible (Eurostat and OECD, 2007). This restriction, however, should be taken with caution as firm dynamics can differ between economies. For example, Daunfeldt, Halvarsson and Johansson (2012) argue that using the 10-employee threshold would exclude

almost 95 percent of surviving firms in Sweden and about 40 percent of new private jobs during 2005–08.

The group of high-growth enterprises represents, on average, a small share of the total firm population, typically ranging between 2 and 4 percent for most OECD countries when measured by employment growth (or twice as high if measured by turnover) (OECD, 2013a). At the same time, individuals behind these fast growing businesses are also scarce among the population. Endeavor and GEM (2011), for instance, found that high-growth entrepreneurs represent only 4 percent of entrepreneurs in Global Entrepreneurship Monitor (GEM) surveys. Yet, the businesses they have founded or co-owned are responsible for approximately 38 percent of total jobs created (among the surveyed entrepreneurs). Still, the proportion of this type of enterprise within the business population will vary according to the level of development of the country.[8]

Within the category of high-growth enterprises, there is a subcategory, known as *gazelles,* that represents a small group of high-growth firms and that is thought to be responsible for creating most new net jobs in the economy. David Birch coined the term gazelle based on his work on job creation patterns by U.S. companies. In his 1981 paper, *Who Creates Jobs?* he argues that larger firms were no longer responsible for new jobs created in the U.S. On the contrary, younger establishments of four years old or less were the main providers of new jobs. These findings motivated a renewed focus on new rapidly growing startups as they were thought to be the main source of new jobs created.

The operational definition of gazelle widely differs among studies (Henrekson and Johansson, 2010). The OECD, for example, takes firm age into consideration in addition to growth in turnover or employment, and defines them as "new firms that grow at a 20–30 percent

[8] The relationship between entrepreneurial activity and economic development seems to depict a U-shaped relationship. The explanation behind this is that less developed factor-driven economies are characterized by the prevalence of many very small businesses, mainly in the informal sector, which emerge as patch solutions to unemployment situations. Thus, high rates of small business startups in the left side of the U-shaped curve are led mainly by necessity-driven entrepreneurs (Reynolds et al., 2002). As development improves (toward efficiency-driven stages), however, the rate of startups begins to decline as capital and production factors are used more efficiently. As firms start becoming larger, economies of scale are exploited and, thus, a growing number of people are able to find stable employment in these companies, reducing self-employment rates. In later stages (innovation-driven), entrepreneurial activity starts increasing again, as knowledge and better infrastructure allow individuals to discover and exploit opportunities through new ventures (Bosma et al. 2008; GEM, 2012).

rate for three or more consecutive years and were born five years or less before the end of the three-year observation period". This subset of high-growth firms can reach 1 percent of firms with 10 or more employees when measured by employment, although the share can get slightly higher when measured by turnover (OECD, 2013a, p.62).

The small proportion of fast growing firms in the enterprise population and the even less portion of new fast growing firms, or gazelles, imply a high prevalence of enterprises that are currently very small and will remain small if they survive. Furthermore, the expected contribution to value added from very small enterprises is quite low, despite the fact that they represent a large proportion of the population of enterprises.

Therefore, the challenge policymakers face is how to provide incentives so that a higher proportion within this large base of heterogeneous microenterprises evolves into dynamic ventures. A first exercise is to understand the sources that explain systematic differences in terms of firm performance and growth potential. The objective of this study is precisely to hint on the possible traits that may account for these empirically observed differences.

Table 1. Selected Performance-Based Definitions of Entrepreneurship[9]

Source	Type	Definition
Eurostat and OECD (2007)	High-growth enterprises	Enterprises with average annualized growth in employees (or in turnover) greater than 20 percent a year over a three-year period, and with 10 or more employees at the beginning of the observation period.
Eurostat and OECD (2007)	Gazelles	Gazelles form a subset of the group of high-growth enterprises; they are high-growth enterprises born five years or less before the end of the three-year observation period.
Kantis, Angelelli and Moori (2004)	Dynamic entrepreneurship	Set of startups and new firms whose growth allows them to evolve in a few years from a micro firm to a competitive SME with high growth potential.

Source: Based on Kantis, Angelelli and Moori-Koening (2004), Eurostat and OECD (2007), and Acs, Parsons, and Tracy (2008).

[9] See OECD (2013b) for a more extensive revision on the definitions of entrepreneurship.

2.3 Entrepreneurship in this Study

This paper focuses on surviving young enterprises that outperform average firms in terms of net job creation. Two clarifications need to be made: what do we mean by youngness and what do we mean by outperformance.

In terms of youngness, the five-year old threshold used by the OECD in the gazelle definition (see Table 1 above) may be too short to analyze growth dynamics, considering that growth patterns are not necessarily linear, especially in young firms (Kantis, 2012). Avoiding restrictive definitions in terms of age may especially apply to a developing context, where the ecosystem of entrepreneurship is not as mature as in developed economies and where the concept of a gazelle firm was initially coined (United States). In fact, this is the case of most countries in the Latin-American region, which are developing their systems as they learn (OECD, 2013b). This study will consider young firms to be those that are ten years old or less.

In terms of outperformance, this study makes a distinction between impact and potential impact. Given that the impact a venture has in the economy in terms of net job creation, for example, is known only ex post, it is more accurate to talk about high-potential firms instead, especially when focusing on young firms that are more prone to face a series of obstacles due to their newness.[10] This is also necessary when faced with a limited time span to analyze firm dynamics (due to data restrictions in this study). Given the evidence of sector heterogeneities, performance in this study will be approximated by relative patterns on net job creation, that is, if a young firm is creating more jobs than its counterparts within the same sector of economic activity (further discussion on this appears later in Section 3.2).

In terms of the restriction over initial firm size, the threshold of ten employees used by the OECD to avoid the small enterprise bias may be also too restrictive, especially considering that most surviving startups are born with just a few employees (Daunfeldt, Halvarsson, and Johansson, 2012; OECD, 2013b). Considering that the business population is composed

[10] Arthur Stinchcombe, in 1965, coined the term *liability of newness* to refer to the greater risk of failure that new organizations face compared to old ones, as they depend on the cooperation of strangers, have low levels of legitimacy, and are unable to compete effectively against established organizations. All these are particular hurdles faced by new organizations that need to be overcome before they aim to more stable growth rates.

predominantly of microenterprises (see discussion in Section 3.1), this study focuses on operative employer businesses with at least one employee.

Given the above-mentioned considerations and data limitations (discussed in detail later in Section 3), this study will focus on high-potential, young organizations, defined as operational employer businesses of ten years old or less, with at least one employee, that outperform the average performance of its counterparts within the same sector of economic activity in terms of net job creation.

3 DATA

3.1 Characterization of High-Potential Entrepreneurs using the EME Survey

The heterogeneous nature of Chilean entrepreneurs is addressed in this study, using the first two waves (2009 and 2011) of the Micro-Entrepreneurship Survey (Encuesta de Microemprendimiento (EME)) from the Ministry of Economy.[11] The data, questionnaires, and reports are publicly available on the website of the Ministry.[12]

The main objective of the EME survey is to capture the heterogeneous traits of individuals involved in micro-entrepreneurship and to quantify their contribution to the economy (Ministerio de Economía, 2011). The EME survey targets self-employed workers in the economy; that is, individuals within the occupied population who have an employment status of employer and own-account worker.[13] The main difference between the status of own-account and employer is that the employer has engaged one or more employees to work for him/her on a continuous basis, while own-account workers have not engaged any employees to work for them on a continuous basis (International Classification by Status in Employment (ICSE-93)). This segment of workers includes the informal sector of the economy, a piece of the puzzle that is generally missing.

The survey targets individuals of 15 or more years old whose employment status falls under the category of employer or own-account, and are identified as such through the New

[11] The third wave of the EME in 2013 was released in March 2014.
[12] http://www.economia.gob.cl/estudios-y-encuestas/encuestas/encuestas-de-emprendimiento-y-empresas/.
[13] Employment status is defined according to the International Classification by Status in Employment (ICSE), 1993, from the International Labour Organization (ILO, 1993).

National Employment Survey (Nueva Encuesta Nacional de Empleo (NENE)),[14] conducted by the National Statistics Office (Instituto Nacional de Estadísticas (INE)). The sample is representative at the national level and reached a total number of 1,792 and 3,009 individuals in the EME 1 and EME 2 waves, respectively, representing a total population of independent workers of 1,686,998 and 2,062,212 in each case. A small panel of 1,188 individuals (40 percent of the EME 2 sample) can be established between the first two waves (Ministerio de Economía, 2012a).[15]

The characterization of entrepreneurs within the self-employed population will be conducted using the subsample of individuals who remained in either of the above-mentioned employment categories at the time of being interviewed (i.e., they did not change their status to employee, unemployed, or inactive). Both waves of the EME survey were used in a pooled manner to increase the number of observations.[16] Reported statistics cannot be extended to the national population, as cross sectional expansion factors do not apply. For those individuals who belong to the panel, their latest available information was used.

The aim of this paper is to identify the main traits of individuals who have the potential to contribute to economic development through their businesses, and since job creation is one distinctive output of high-impact and high-growth firms, as described in Section 2.2, this section focuses on the individuals who create net job positions through their businesses. The idea is to verify whether or not these individuals systematically differ from their counterparts within the self-employed population. This is interesting, basically for two reasons. First, it may be informative regarding the potential of the microenterprise sector, which includes the informal sector, as a breeding ground for high-potential entrepreneurs. Second, it can assist in extricating the dimensions that explain entrepreneurial heterogeneity by focusing on individual characteristics and how they relate to desirable outputs of the entrepreneurial process. This may

[14] A newer version of the former National Employment Survey is available as of 2010. The NENE is the result of methodological modifications applied to the former ENE to fulfill international standards in the field.
[15] The third wave of the EME survey (2013) did not follow the previous panel sample; hence, only a cross-sectional analysis can be carried out.
[16] The analysis was also done using the panel subsample and the cross sections separately. The number of observations in some of the categories of entrepreneurs, however, was significantly reduced, affecting the robustness of the analysis. Therefore, both cross sections were used in a pooled manner.

provide further evidence against the flawed belief that fostering generic entrepreneurship will unequivocally boost economies, as claimed by Shane (2009).

Consequently, the sample of self-employed workers was divided into three categories of individuals according to their job creation pattern:[17] those who create net job positions through their businesses; those who do not involve any employees in their businesses; and those who are somewhere in the middle. It is important to clarify that due to data limitations, no distinction has been made between the types of job positions created (proxy of quality). Operationally, the three categories are defined as follows (see also Figure 1 below):

a. **High-potential entrepreneur (HPE).** Includes individuals who have created net job positions since their business was launched. It includes (i) those whose business did not have employees when it was launched, but did have at the time of being surveyed; and (ii) those who had more employees at the time of the interview than when the business was launched.

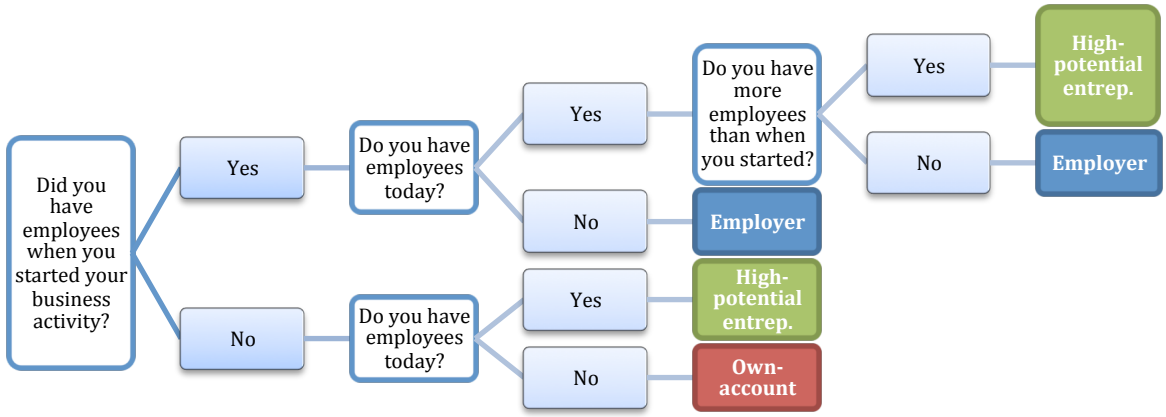
b. **Employer.** Includes individuals who have created job positions since their business was launched but not in an increasing way, as defined in the previous category.

c. **Own-account**. Includes individuals who are declared to be in employment status of own-account and whose business did not create any job positions, neither when they started nor later, at the time of the survey.[18]

[17] A drawback of this approach is that it considers only two snapshots in time to infer employment creation. Unfortunately the data does not allow the capture of patterns of employment creation between these two snapshots.

[18] The EME 1 wave asked whether individuals under this condition had employees at some point in 2008. In 97 percent of cases, they did not have. The remaining 3 percent had non-waged employees or temporary workers. So, without loss of generality, it can be assumed that those who did not have employees neither when they started nor later at the time of the survey, can be correctly considered as own-account.

Figure 1. Category of Individuals according to Job Creation



Two points require clarification with regard to the definitions above. First, individuals within the category of HPE can also be considered as employers, according to the ILO Employment Status Classification. A distinction, however, was made from the category of normal Employer in terms of the net job creation pattern. Second, according to ILO, own-account workers may have hired employees at some point, although not on a permanent basis. In this paper, own-account individuals are considered as those who do not hire any employees to work for them.

Based on this definition, the resulting number of self-employed under study, by category, is presented in Table 2. The sample of self-employed individuals under analysis includes 2,881 observations, distributed as 77.40 percent own-account, 12.36 percent employers, and 10.24 percent high-potential entrepreneurs. This means that a large share of the self-employed population in the sample does not contribute to employment creation. Only 10 percent of individuals within the sample under study contribute to net employment creation. Consequently, finding these high-potential entrepreneurs among the self-employed population is similar to the challenge of locating Wally.

Table 2. Distribution of Individuals by Category

3.1.1.1.1 Individual Category	3.1.1.1.2 Number	Percent
High-potential entrepreneur	295	10.24
Employer	356	12.36
Own-account	2,230	77.4
Total	**2,881**	**100**

This subset of HPE has created around 661 net job positions in total between the time the business was established and the time the survey was conducted.[19] The remaining employers (12 percent), however, have destroyed approximately 634 job positions between the launch of their business and the moment they were interviewed.[20] Therefore, together, this segment of the self-employed population does not appear to have contributed to net job creation when considering these two snapshots in time. Unfortunately, there is no available information about employment patterns between these two snapshots to better assess net job creation dynamics.

But who are these high-potential entrepreneurs? In what dimensions do they differ from the rest of the self-employed population? These questions are addressed later in Section 4, based on the comparison of key traits between entrepreneurial categories. The main variables used to conduct the characterization of entrepreneurs are described in Appendix 1.

3.2 Characterization of High-Potential Entrepreneurship Using the ELE Survey

The main objective of the Longitudinal Enterprise Survey (Primera Encuesta Longitudinal de Empresas (ELE)) from Chile's Ministry of Economy is to characterize national firms in the formal sector, according to their size and economic activity, and to identify the determinants of their performance. It is available in two waves, so far, for years 2009 (ELE 1) and 2011 (ELE 2), covering information for 2007 and 2009, respectively. The data, questionnaires, and reports are publicly available on the website of the Ministry of Economy.[21]

The sample of formal firms to be surveyed has been established using two sources of information: the INE Enterprise Directory and the Tax Office Registry (Servicio de Impuestos Internos (SII)) (INE, 2011). The ELE 1 sample includes 10,213 observations (1.3 percent of the national population of enterprises) and is represented by economic activity (ISIC Rev. 3, at one digit level, covering 11 sectors) and size (measured through sales in six categories). The ELE 2 sample includes 7,062 firms (2.83 percent of the national population of firms) and is also represented by economic activity (ISIC Rev. 3, at one digit level, covering 12 sectors) and sales

[19] Again, employment dynamics in between these two periods is not observable.
[20] Total number of job positions created by employers when they established their business was 1,047, while the number of job positions they had when they were interviewed was 413. This implies that 1,047 – 413 = 634 job positions were destroyed between the two moments in time.
[21] See http://www.economia.gob.cl/estudios-y-encuestas/encuestas/encuestas-de-emprendimiento-y-empresas/.

(measured through sales in five categories). The second wave did not include the segment of microenterprises with sales lower than 800 UF (unit of account) as the EME was expected to cover this segment of the business population. This explains the drop in the total sample between waves. A panel sample can be constructed by using 37.8 percent of the 2011 sample, totaling 2,667 observations.

The survey instrument collects information about firm finances and accounting; commercialization; access to markets; knowledge and use of public instruments; general management and owner characteristics; firm innovation and perceived obstacles to innovation; human resources (recruitment, employment, and training); and use of information technologies. One of the significant characteristics of this database is that it simultaneously collects information about the firm and its owner (or partner, when there is more than one owner) or general manager. This allows for the study of the relationship between entrepreneurial traits and firm characteristics, as it takes into consideration the attributes of the owners when analyzing sources of firm heterogeneity.

The ELE database has multiple limitations, some of which cannot adequately be overcome, which determine the effective sample to be used in this study. The most important ones for the purpose of this study relate to the comparability between waves, consistency issues, and missing values.

Some questions in the survey were modified, thus generating some comparability issues. In some cases, for example, these can be addressed creatively by aggregating subcategories. In some cases, however, this is not possible. For instance, with regard to labor demand, firms were requested in the first wave to exclude subcontractors when reporting new recruits. In the second wave, however, they were requested to include them. Consequently, the measure relating to annual net job creation (recruitment minus dismissals and resignations) is not comparable between both surveys. This limits the use of the panel dataset to analyze net job creation dynamics. With regard to innovation, both waves applied varying approaches to measure this. The first wave applied an output approach, while the second used an activity one. As a result, the types of innovation are not exactly comparable between waves. In terms of sales, the first wave requested a direct report of sales, while the second requested a report, in accounting terms, within an income statement. The latter may have been more difficult to understand, judging by

the large number of missing values. Finally, it is important to note that the ELE survey is rather new and, therefore, it is understandable that modifications to the questionnaire were necessary to improve it. Nevertheless, attention to the comparability between waves is recommended, especially with regard to the proportion of firms followed over time.

With regard to consistency, the year a company is registered at the tax office—relative to its year of establishment—is considered to be a time-invariant variable. Furthermore, this information would be expected to have been pre-filled, or at least double-checked for consistency, by the tax office from where the data for the sample was drawn. Nevertheless, only 57 percent of companies in the panel sample had correctly stated the year of registration.[22] Exceptions may represent mergers or acquisitions, or when a company is relatively old. The variances, however, are observed throughout the age distribution, inevitably raising the question of reliability between the cross sections and the panel dataset.

Finally, the effective number of observations to be used is significantly reduced due to the missing values in key variables. These, for example, relate to innovation and sales.

Due to the above-mentioned limitations, the panel dataset could not be used,[23] excluding the possibility of conducting an exercise on firm dynamics. Furthermore, the substantive number of missing values in terms of sales in the second wave determined the focus of this study to be on the 2007 ELE cross-section.

The scope of the analysis includes those firms established in 2006 or sooner, which had positive sales in 2006 and 2007. Companies under public ownership and those that did not have at least one employee in 2006 and 2007 were both eliminated from the analysis. These parameters allowed for the inclusion of operational enterprises, totaling 6,812 observations for study.

High-potential firms are defined as those that create more net jobs than their counterparts in the same economic sector. Those enterprises that create fewer jobs than the sector average will be considered as low-potential ones. A further distinction will be made in terms of age: those that

[22] The same question was asked in both waves.
[23] An attempt to conduct the analysis, using the panel dataset, was made. The number of observations that resulted, however, was too low to ensure robustness in the results.

are ten years old or less, at the time of the interview, are considered young, while those 11 years or more are considered mature.

Consider the following variables used to establish the firm categories previously mentioned:

$$HL^{j}_{i,2007} = \text{Hired labor by firm i operating in sector j in 2007}$$

$$DL^{j}_{i,2007} = \text{Dismissed and resigned labor in firm i operating in sector j in 2007}$$

$$E^{j}_{i,2007} = \text{Total employment of firm i operating in sector j in 2007}$$

$$E^{j}_{i,2006} = \text{Total employment of firm i operating in sector j in 2006}$$

Where $i = 1,2,\dots,N$ indexes firms and $j = 1,2,\dots,S$ denotes the sector of economic activity the firm i is operating in. Given the cross sectional data at hand, the employment level in 2006 for a firm i operating in sector j can be approximated as follows:

$$E^{j}_{i,2006} = E^{j}_{i,2007} - HL^{j}_{i,2007} + DL^{j}_{i,2007}$$

So, the average employment level between 2006 and 2007 for a firm i operating in sector j can be calculated as:

$$\overline{E^{j}_{i}} = (E^{j}_{i,2006} + E^{j}_{i,2007})/2$$

For each firm, the ratio of net jobs created in 2007 (recruitment minus dismissals and resignations) to the average employment level is calculated as follows:

$$RL^{j}_{i} = \frac{(HL^{j}_{i,2007} - DL^{j}_{i,2007})}{\overline{E^{j}_{i}}}$$

An average ratio of net jobs created to average employment is calculated for each sector j as follows:

$$RL^{j} = \frac{1}{N_j}\sum_{l=1}^{N_j} RL^{j}_{l}$$

where N_j is the total number of firms in sector j. Therefore, a firm will be considered of high potential if its ratio of net jobs created RL_i^j is higher than the average ratio of the sector j where it operates, RL^j. Adding age constraints, the following firm categories are distinguished:

$$\mathrm{RL}_i^j > \mathrm{RL}^j \text{ and age} \leq 10 \Longrightarrow \text{High-potential, young firm} = \text{HPYF}$$

$$\mathrm{RL}_i^j \leq \mathrm{RL}^j \text{ and age} \leq 10 \Longrightarrow \text{Low-potential, young firm} = \text{LPYF}$$

$$\mathrm{RL}_i^j > \mathrm{RL}^j \text{ and age} > 10 \Longrightarrow \text{High-potential, mature firm} = \text{HPMF}$$

$$\mathrm{RL}_i^j \leq \mathrm{RL}^j \text{ and age} > 10 \Longrightarrow \text{Low-potential, mature firm} = \text{LPMF}$$

Based on this definition, the resulting number of firms under study by category is presented below in Table 3. The sample appears quite equilibrated in terms of firm age: 55 percent are mature firms (HPMF+LPMF), while 45 percent are young (HPYF+LPYF). High-potential firms represent approximately a third of each age group. HPYF, in particular, represents almost 15 percent of the sample under study. What are the characteristics of this subgroup of the formal business population? In what dimensions do these four firm categories differ? What about the entrepreneur behind these types of firms? These questions are answered later in Section 5.2, based on a mean comparison exercise on various firm traits, such as innovation propensity and exporting profile. The list of traits under study is described in Appendix 2. Firm categories are also characterized in terms of the traits of its owner, which will be useful to establish comparisons with counterparts in the EME survey.[24]

Table 3. Distribution of Firms by Category

Firm category	Number	Percent
HPYF	1,001	14.7
LPYF	2,031	29.8
HPMF	1,036	15.2
LPMF	2,744	40.3
Total	**6,812**	**100**

[24] It is important to note that in the ELE survey questionnaire, the section relating to information about the owner refers to the general manager. Therefore, whenever the general manager did not coincide with the owner of the firm, some questions were left unanswered, such as the motivation to start the business. This implies a further source of missing values in those variables pertaining to the traits of owners.

4 CHARACTERIZATION OF HIGH-POTENTIAL ENTREPRENEURS

In Section 3.1, three categories of individuals were defined in terms of their job creation pattern: own-account, employers, and high-potential entrepreneurs. The main objective of this section is to verify whether the traits between these three categories statistically differ. The methodology consists simply in comparing the mean value of each trait between categories of entrepreneurs and controlling the industry[25] and time effects. This way, the relation of interest is free from the effects of unobservable characteristics specific to the industry in which the entrepreneur is embedded. This is done using a linear regression between the trait under interest as a dependent variable and two dummies capturing two out of three categories of individuals. If no extra variables are included and the category dummies take value 0, the intercept coefficient of the linear regression captures the mean value of the dependent variable for the base comparison category. The coefficient for each dummy captures the differential in the mean value of the dependent variable due to a specific category. If the coefficient is statistically significant, it implies that categories statistically differ, on average, in the trait under study. When time and industry effects are controlled for, coefficients represent how the mean value of the dependent variable differs between categories once the effect of these fixed effects over the mean have been taken into account.[26]

Table 5 at the end of this subsection summarizes the results from this exercise. Means and the number of available observations for each trait are reported for each individual category. Stars next to the mean value denote that the mean difference between two categories is statistically significant once industry and time effects have been controlled for.[27] The base comparison category is high-potential entrepreneurs (HPE). For example, the proportion of male individuals is significantly lower in the own-account category (56.6 percent) than in the HPE one (70.5 percent). The latter category, however, does not statistically differ from employers (70.2 percent) in terms of male participation.

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[25] A total of ten categories of economic activity were controlled for, following the ISIC Rev.2 of 1968.
[26] This exercise was done using the command [**areg]** in Stata 12, adding a time dummy to differentiate between waves and adding the *absorb* option for sector dummies.
[27] Stars denote p-values at usual significance levels: * 0.10, ** 0.05, and *** 0.01.

In general terms, the results show that HPE and employers do not differ substantially, although there are some differences in specific motivational dimensions. This is possibly explained by the way categories were defined in Section 3.1. A larger time span would allow for determining more clearly those who have created new job positions on a systematic basis, such that HPE can be clearly distinguished from employers. Own-account individuals, on the other hand, do differ in many dimensions from employers and HPE. The main results of this comparison exercise are discussed next.[28]

Economic sector. The distribution of sectors by category of entrepreneur appears quite similar, as shown below in Table 4 (see upper-left percentage in each cell). As expected, a relatively higher proportion of individuals are performing in the service sector (Wholesale and Retail Trade, Restaurants and Hotels). The Agriculture, Hunting, and Fishing sector is slightly more important in the employer category. HPE do not seem to differ substantially from the other two categories, although a slightly higher proportion is observed in sectors J and K, which are expected to be more knowledge-intensive sectors.

Socioeconomic background. The type of primary school the individual attended can be considered as a proxy for socioeconomic status which, at the same time, can partly define the quality of social networks at their disposal.[29] Self-employed workers from all three categories have mostly attended public schools, but the proportion of own-account attending this type of educational establishment is statistically higher. At national levels, the distribution of student enrollment by type of school is about 42 percent in public, 50 percent in publicly subsidized, and 7 percent in private ones. The sample under study is, therefore, biased towards individuals belonging to a lower socioeconomic status.

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[28] The analysis was also done for the subsample of businesses that were 10 or fewer years old, leaving aside own-account. The resulting number of observations in some categories, however, was too small to conduct a robust analysis. Nevertheless, a general look at the averages does not show much difference between the two employer categories, resembling the results for the entire sample in Table 5.

[29] One of the key characteristics of the Chilean education system is the distinction between schools in terms of their ownership status (public versus private) and their main source of funding (public subsidies versus family payments). These variables generate a system with three categories of co-existing schools—public, voucher-private, and non-subsidized private—among which children end up being unevenly distributed, according to their social and economic characteristics (see OECD, 2012; Valenzuela, Bellei and de los Ríos, 2013). This structure is the result of several market-oriented reforms implemented in the 1980s. Criticism against these reforms accumulated in recent years in a broad backlash against the education system. This led to a political discussion on reforming the education legislation in 2014.

Table 4. Sector Distribution by Category of Individual (in percent)

Sector	Own account	Employer	HPE	Total
A. Agriculture, Hunting, Forestry, and Fishing	22.56 73.00	31.74 16.40	24.75 10.60	100
D. Manufacturing	12.91 82.52	9.55 9.74	9.15 7.74	100
F. Construction	7.67 75.66	7.58 11.95	9.49 12.39	100
G and H. Wholesale and Retail Trade and Restaurants and Hotels	36.55 77.55	35.67 12.08	36.95 10.37	100
I. Transport, Storage, and Communication	6.05 78.03	5.62 11.56	6.10 10.40	100
J and K. Financing, Insurance, Real Estate, and Business Services	1.84 68.33	1.69 10.00	4.41 21.67	100
O. Community, Social, and Personal Services	11.79 84.03	6.74 7.67	8.81 8.31	100
Other sectors	0.63 70.00	1.40 25.00	0.34 5.00	100
Total	100	100	100	

Formality. Approximately 42 percent of self-employed workers have registered in the tax office, indicating their formal status. The remaining 58 percent, however, have not gone formal yet and the majority of them are not planning to do so. Formality is concentrated in the employer and HPE segments, doubling the rates of formality in the own-account segment. This means that the self-employed sector, with a high prevalence of own-account workers, mostly represents the informal sector of the economy.

Educational attainment. Consistent with the high prevalence of individuals belonging to a lower socioeconomic status, the levels of tertiary or more educational attainment within self-employed individuals is low compared to national levels, especially for own-account workers. According to OECD (2013c), national tertiary education attainment within the adult population grew from 25 percent in 2007 to 29 percent in 2011. As can be seen in Figure 3, the proportion of HPE with tertiary or more educational attainment (20 percent) more than doubles the proportion of own-account workers (9 percent). However, there is no statistical difference between HPE and employer categories. Low educational attainment poses doubt regarding the potential of the self-employed segment as a breeding ground for dynamic entrepreneurs, as these are typically highly educated and technically skilled.

Figure 2. Attendance at Primary Private Schools, by Category of Individual

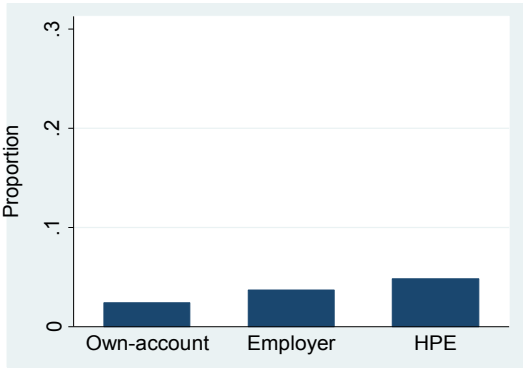
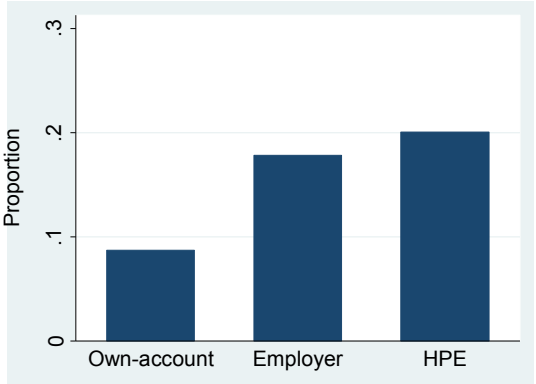


Figure 3. Tertiary or More Educational Attainment, by Category of Individual



Prior status as employee. Prior employee status may be considered as a source of professional experience and of tacit knowledge, which is added to the formal stock of human capital of the individual. It furthermore contributes to enlarge social networks. In fact, it is quite frequent to find founding teams that have emerged from previous labor relationships. Prior status as employees does not statistically differ between categories and reaches on average two thirds of the population. The reason, however, to quit prior status of employee does differ, as discussed next.

Motivational dimensions. When looking at the phenomenon of entrepreneurship from a behavioral perspective, it is quite intuitive to presume that individuals decide to set up a new venture motivated by diverse reasons. While some individuals may pursue the creation of a fast growing firm that reaches global markets, others may expect to establish a business designed to remain local, small, and owner-operated. Different underlying motivations to start a new venture inspired the opportunity- versus necessity-driven entrepreneur taxonomy (or pull versus push framework) put forward by Reynolds et al. (2002) and the GEM.[30] This taxonomy assumes that there is a relationship between the underlying entrepreneurial motivations to start a new venture and the nature and direction followed by the business entity.

When looking at different motivational dimensions of individuals, some significant differences between categories of individuals can be observed. It is important, however, to bear

[30] The GEM reports show that self-employment driven by necessity is particularly high in less developed countries. As development increases and new opportunities emerge, however, these entrepreneurs tend to decline and more opportunity-driven ones come into the scene, improving the productive structure of the economy. This explains the U-shaped relationship between entrepreneurial activity and economic development.

in mind that answers are subjective and can consequently be influenced by the current situation of the individual, turning the answers endogenous.[31]

Regarding the reason to quit prior status as employee, HPE are less prone to have quit due to job-related problems (see definition in Appendix 1). On the contrary, they are more likely to leave this status voluntarily and driven by an opportunity. Furthermore, although there is no statistical difference between employer and HPE regarding the willingness to be a paid-employee again, HPE are nevertheless relatively less willing to come back to this status. Again, this is possibly influenced by a better performance of the business.

The motivation to remain independent, as opposed to work as a paid-employee, statistically differs between employers and HPE. Need for independence and economic achievement are more frequent in HPE. Furthermore, they are more likely to be driven into entrepreneurship by opportunity- and independence-related reasons.

Altogether, motivational variables show that HPE are more likely to be pulled into entrepreneurial activity than employers and own-account. This is consistent with the trait approach in which the entrepreneur is assumed to have distinctive personality characteristics, as discussed in Subsection 2.1.

Financing. As expected, most individuals have financed their businesses mostly by own savings. Employers, however, tend to rely relatively more on outside sources of funding, such as government programs and loans from family and friends. Regarding access to credit, only a few of them have had a credit rejection.

[31] See Carter et al. (2003) for a discussion on the differences between retrospective and prospective motivations.

Figure 4. Reason to Quit Prior Employee Condition, by Category of Individual

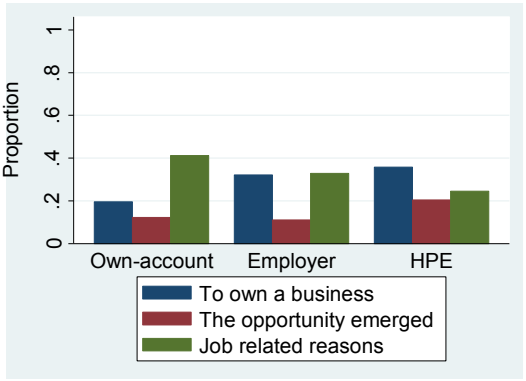


Figure 5. Motivation to Work as Independent, by Category of Individual

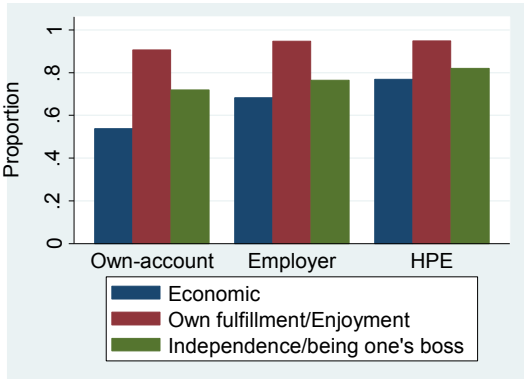
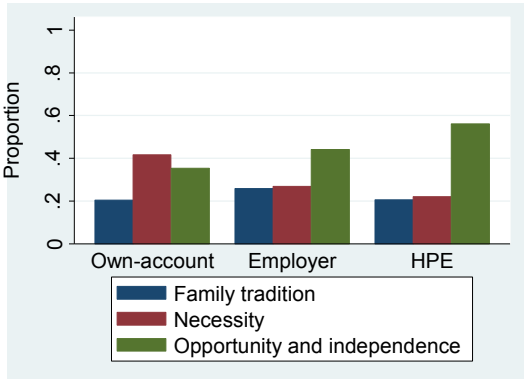


Figure 6. Motivation to Start the Business, by Category of Individual



Perceived obstacles to business growth. Lack of financing is the most important obstacle faced by the individuals under study, although slightly more intense for own-account workers. The proportion of individuals that perceive financial problems, however, is not as high as one would expect, especially considering the high prevalence of individuals belonging to a lower socioeconomic status. Lack of demand is also a highly perceived obstacle, possibly related to lack of external legitimization, lack of cognitive capabilities to reach targeted markets (Aldrich and Ruef, 2006, Ch. 9), and lack of functional social networks. The fact that lack of demand is seen almost as detrimental for business growth as lack of funding is a significant result from a policy point of view. This poses a question about the reasons (market failures) behind this perceived obstacle and the corresponding policy tools that could be devised to reduce

this hurdle. It also advocates for a complementary approach in policy formulation (go beyond financial public instruments) and to increase the understanding of the sources of these obstacles.

Figure 7. Use of Formal Banking to Launch the Business, by Category of Individual

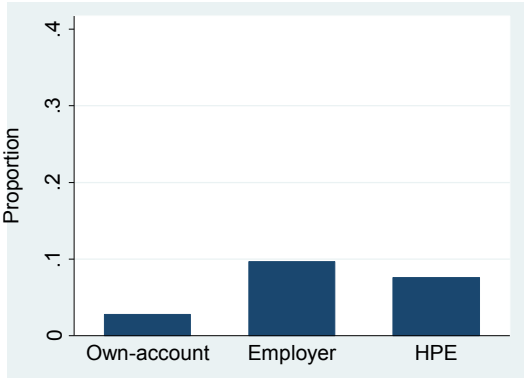


Figure 8. Use of Government Programs to Launch the Business, by Category of Individua)

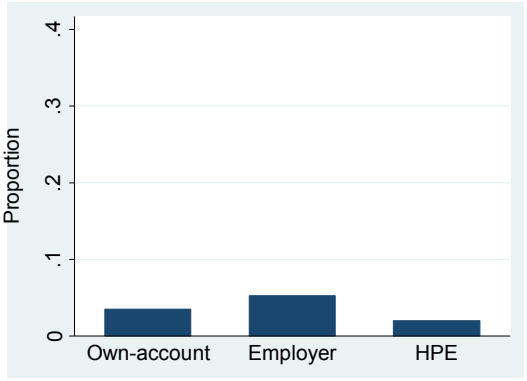
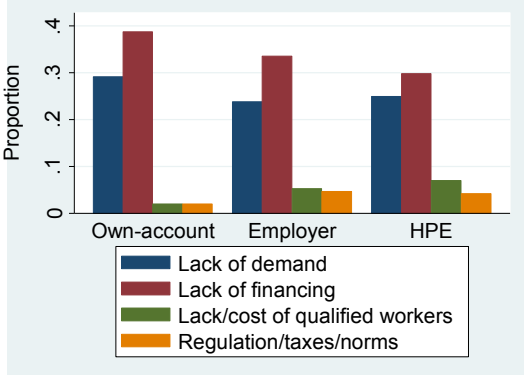


Figure 9. Main Perceived Obstacles Affecting Business Growth, by Category of Individual



Business expectations. Finally, a relatively high proportion of individuals in all categories planned to keep their business under the same conditions. High business expectations, the drive to conquer new markets, and the vision of a growing business are key traits of high-impact entrepreneurs who resemble the Schumpeterian entrepreneur profile, as emphasized by the Endeavor organization. Most independent workers in the sample under analysis, however, do not seem to fit into this profile.

The high amount of individuals who plan to remain the same fit more into the definition of small businesses, which are designed to remain small and owner-operated. However, since high-potential startups and nontraditional businesses, aimed at remaining small, are the ones that have the potential to grow (bringing wealth and jobs to the economy), there is doubt that the Chilean self-employed population can significantly contribute to economic development—at least in terms of how high-potential entrepreneurship is expected to contribute.

Table 5. Mean Comparison for Given Traits between Entrepreneurial Categories

Dimension	Variable	No.	Own-account (77.4%)	Employer (12.4 %)	HPE (base category) (10.2%)	Total
Personal traits	**Male entrepreneur**	2,881	56.59 ***	70.22	70.51	59.70
	Age	2,881	49.13 ***	50.56	51.73	49.58
	Type of primary school attended	2,832				
	Public		87.32 **	83.38	82.41	86.33
	Private subsidized		4.79	7.74	7.24	5.4
	Private		2.42 *	3.72	4.83	2.82
	Motivation to be independent	2,881				
	Independence/Being one's boss		71.88 ***	76.40 *	82.03	73.48
	Own fulfillment and enjoyment		90.67 ***	94.66	94.92	91.60
	Economic achievement		53.72 ***	68.26 **	76.95	57.90
	Role models	2,863	0.54	1.41	0.34	0.63
Human capital	**Graduate or tertiary educational attainment**	2,868	8.73 ***	17.85	20.07	11.02
	Training	2,872	12.19	14.93	15.31	12.85
	Area of training (based on those who were involved in training)	369				
	Business related		32.84	28.30	37.78	32.79
	Information technologies		6.27	9.43	15.56	7.86
	Prior status as employee	2,881	64.35	65.73	67.46	64.84
	Reason to quit prior status of employee (based on those who have been employees before)	1,855				
	To own a business		19.51 ***	32.05	35.71	22.80
	The opportunity emerged		12.28 **	11.11 **	20.41	12.99
	Prior job-related reasons		41.12 ***	32.91 *	24.49	38.33
	Willingness to be an employee again	1.855	34.04 ***	27.35	20.92	31.81
Business traits	**Time in current business**	2,872	15.78 ***	17.74 **	19.70	16.43
	Motivation to start the business	2,488				
	Family tradition		20.43	25.83	20.60	21.10
	Necessity/Survival-related reasons		41.58 ***	26.82	22.10	37.70
	Opportunity- and independence-related reasons		35.38 ***	44.04 **	56.18	38.67
	Formal inscription in tax office	2,839	33.76 ***	65.80	71.67	41.60
Financial traits	**Source of funding to launch the business**	2,062				
	Own savings and acquaintance loans		81.81	74.01 **	83.25	81.09
	Formal banking		2.81 **	9.69	7.61	4.03
	Government program		3.54 *	5.29 **	2.03	3.59
	Credit restrictions		1.33	2.63	2.96	1.60
Environment	**Main obstacles hindering business growth**	2,752				
	Lack of demand		29.15	23.82	24.91	28.05
	Lack of financing		38.74 ***	33.53	29.82	37.17
	Labor		2.02 ***	5.29	7.02	2.94

Dimension	Variable	No.	Own-account (77.4%)	Employer (12.4 %)	HPE (base category) (10.2%)	Total
	Government		2.02 *	4.71	4.21	2.58
	Business expectations	2,881				
	Market expansion		30.18	31.46	36.61	31.00
	Remain the same		53.99	57.58	51.24	54.46

Note: Stars denote p-values at usual significance levels (* 0.10, ** 0.05, and *** 0.01).

4.1 Summary of Findings

Table 6. Summary of Findings Relating to Entrepreneurial Traits

Dimension	Main findings
Composition of the sample and job creation	Sample under study is composed mainly of own-account workers (77 percent) who do not create jobs. A small proportion of the self-employed (10 percent) can be considered as high-potential entrepreneurs; that is, they have created net jobs between the launch of their business and the moment they were interviewed. It can be concluded that, overall, the sample of self-employed individuals under study have not directly contributed to the creation of jobs through their businesses.
Gender	A higher participation (approximately 70 percent) of male individuals is observed in employer and HPE categories. The question is why women's businesses are not performing as well as those of their male counterparts.
Formality	Almost 60 percent of the sample of self-employed individuals is engaged in informal businesses and most of them do not expect to go formal. Employers and high-potential entrepreneurs have a higher propensity to run formal businesses.
Socioeconomic background	The sample under study has a high prevalence of individuals that belong to a lower socioeconomic background, judging by the high proportion of individuals who attended public schools.
Educational attainment	High-potential entrepreneurs more than double own-account workers with tertiary education attainment. Levels, however, are still low compared to national figures. Low educational attainment—and the relatively high prevalence of individuals from a lower socioeconomic background—casts doubt on the potential of the self-employed segment as a breeding ground for dynamic entrepreneurs, since these individuals are typically highly educated and technically skilled.
Motivation	High-potential entrepreneurs are more likely to have been *pulled* into entrepreneurship than employers and own-account workers, who are more prone to have been *pushed* into their current status.
Obstacles to	Despite financial problems being perceived as an important hurdle to business

business growth	growth, they are almost as important as the lack of demand. This result is noteworthy from a policy point of view. A better understanding of the reasons for lack of demand (market failure) is required. This may imply going beyond financial policy instruments, at least when targeting HPE.
Business expectations	12 percent of individuals somehow fit into the concept of high-potential entrepreneurs. Less than 40 percent of them, however, expect to expand their business in upcoming years. This implies that only 4 percent of the population may effectively fit into the concept of high-potential entrepreneur.

5 CHARACTERIZATION OF HIGH-POTENTIAL FIRMS

The main objective of this section is to verify whether or not the traits between enterprise categories described in Section 3.2 statistically differ. The comparison methodology is analogous to the one used in the previous section for entrepreneurs, but size dummies are also included to control for systematic differences in size between categories. Table 8 and 9 summarize the results from this exercise. Means for each trait and the number of available observations are reported for each firm category. Stars next to the mean value of a given trait denote that it statistically differs from the mean of the base category, once industry and size effects have been controlled for.

The base comparison category is high-potential young firms (HPYF); that is, mean traits in LPYF, HPMF and LPMF categories should be compared with HPYF. Results should not be extrapolated to a national firm population, as they are based on a subsample and, therefore, expansion factors do not apply.

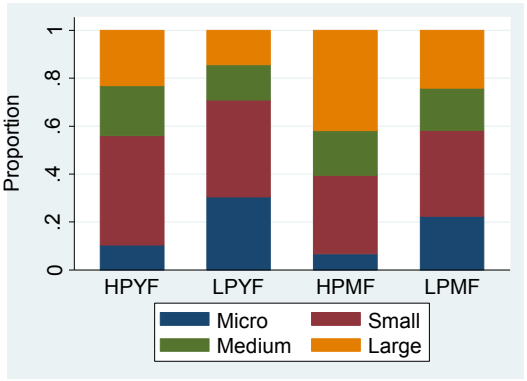
5.1 The Traits of Firms

In general, it can be observed that HPYF differ mostly from low-potential firms, both young and mature, although some differences from high-potential, mature firms may be encountered. Some general results, based on the sample under study, are discussed next.

Size. There is a relatively high prevalence of medium and larger firms within high-potential ones, both young and mature, especially among the mature companies where more than 60 percent are medium or large. This implies that there are systematic differences between categories in terms of size, which justifies the need to control for size effects when conducting

mean comparisons between categories. In fact, a higher propensity to conduct research and development (R&D), innovate, and export in larger firms is a common finding in the literature, based on innovation surveys (Mairesse and Mohnen, 2010), which also holds—in particular—for Latin American firms (Ortiz et al., 2013).

Figure 10. Distribution of Size by Category of Firm



Economic sector. The distribution of sectors does not differ substantially between firm categories (see Table 7 below). In all four categories, one can observe a relatively higher proportion of firms performing in the Wholesale and Retail sectors, but less firms performing in the Mining or Financial Intermediation sectors, which resembles national distributions. There are some minor differences, however, when categories are compared to the overall distribution of sectors (see last column in Table 7). For example, it can be observed that HPYF are more prone to operate in some services sector, such as F and K, and that their mature counterparts (HPMF) have a slightly higher participation in Manufacturing. This result may relate to the size distribution in each category.

Table 7. Distribution of Size and Sector by Category of Firm

Size and sector	HPYF	LPYF	HPMF	LPMF	Total
Micro	0.10	**0.30**	0.07	**0.22**	0.21
Small	**0.46**	**0.41**	0.33	0.36	0.38
Medium	**0.21**	0.15	**0.19**	0.17	0.17
Large	0.23	0.14	**0.42**	0.24	0.24
Total	100%	100%	100%	100%	100%
A. Agriculture and Forestry	0.03	0.05	**0.08**	**0.09**	0.07
C. Mining and Quarrying	0.04	**0.05**	0.04	0.04	0.04
D. Manufacturing	0.13	0.11	**0.16**	0.13	0.13
E. Electricity, Gas, and Water Supply	0.03	0.03	0.03	0.03	0.03
F. Construction	**0.12**	**0.11**	0.10	0.08	0.10
G. Wholesale and Retail, Other	0.17	0.19	**0.21**	**0.22**	0.20
H. Hotels and Restaurants	**0.12**	**0.12**	0.09	0.10	0.11

Size and sector	HPYF	LPYF	HPMF	LPMF	Total
I. Transport, Storage, and Communications	**0.11**	**0.11**	0.10	0.10	0.10
J. Financial Intermediation	0.05	0.05	0.06	0.06	0.06
K. Real Estate, Renting, and Business Activities	**0.15**	**0.11**	0.09	0.08	0.10
O. Other Community, Social and Personal Activities	**0.06**	**0.06**	0.05	**0.06**	0.05
Total	100%	100%	100%	100%	100%

* In red are those proportions that are higher than the proportion for the total sample in the last column.

Exports. Once size and sector effects have been controlled for, it can be observed that HPYF only differ statistically from LPMF. The propensity to export in HPYF is slightly less than in LPMF, which is probably explained in part by the differential in firm age.

R&D activities, innovation, and certification. No difference between firm categories can be observed in terms of R&D propensity: the proportion of R&D performers is negligible in all of them. Even though it is well known that R&D performers are a small proportion of the business population (and are most likely large firms), a higher proportion of R&D performers should be expected, especially in those categories that are innovating. According to the Ministry of Economics (2012b), 22 percent of innovating enterprises were engaged in R&D activities in 2009-2010 (year of the Global Financial Crisis). This suggests that the ELE 1 may have underestimated the proportion of R&D performers, given that this question was asked in the context of types of investment made by the firm.[32]

Regarding innovation, HPYF in the sample had a higher propensity to innovate in 2007 compared to low-potential firms, both young and mature, but not when compared to HPMF. This holds for all types of innovations. Approximately 50 percent and 55 percent of HPYF and HPMF, respectively, introduced an innovation in 2007.

In terms of the achievement of technical standards, a lower proportion of HPYF have been certified compared to their mature counterparts. This is probably related to a better organizational structure that has been achieved through time by mature firms, since the

[32] Firms were first questioned whether they made any type of investment and, conditional on a positive response, a list of investments were requested, the last relating to R&D. If a firm was unaware of whether R&D may be considered an investment or, more so, that it did not know whether or not it undertook R&D, it is highly likely that this type of approach to capture R&D investment would result in an underestimate.

achievement of quality standards, for instance, is associated with good management capacity (Goedhuys, Janz, and Mohnen, 2014).

Figure 11. Propensity to Innovate (Overall), by Category of Firm

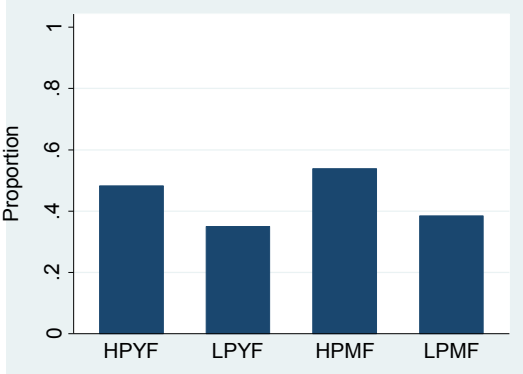
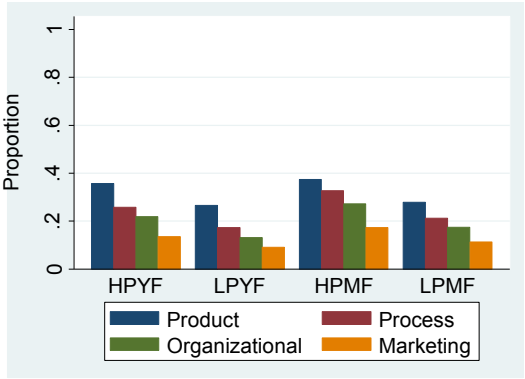


Figure 12. Propensity to Innovate, (by Innovation Type), by Category of Firm



Use of public instruments. No statistical differences can be observed in the use of public instruments. In general, more than 80 percent of firms have not applied to public instruments.

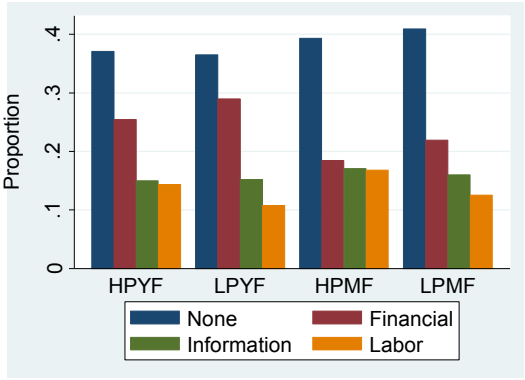
The low proportion of firms applying to public instruments—which holds for all four firm categories—raises the question of why they are not doing so. Based on the responses provided by the interviewees, almost 50 percent stated that it was basically due to their lack of knowledge about public instruments.[33] This lack of knowledge may be explained from both a supply and demand point of view. On the supply side, the diffusion strategy implemented by public agencies offering support to firms may be ineffective. On the demand side, firms may not be alert and sufficiently informed about the supporting infrastructure at their disposal. Other reasons for not applying to public instruments include that the instruments are considered not to meet the needs of firms (18.5 percent) or because the application process is too difficult or costly (10 percent).

Obstacles to innovation, credit constraints, and profit re-investment. In general, no significant difference can be observed between the obstacles to innovate that are perceived by firms in each category (see Figure 13). Some differences can be observed in terms of financial

[33] Statistics for this variable are not reported in the table of results, although they can be provided, if needed, upon request to the author.

problems, which are relatively more perceived by HPYF than by mature firms, in general, even after controlling by sector and firm size. This partly may be explained by the fact that HPYF are innovating more than LPMF, so they have a higher propensity to face an obstacle by construction[34] (in other words, the variable is endogenous, as suggested by Mairesse and Mohnen, 2010). Still, the most frequent perceived obstacle in all firm categories is directly none.

Figure 13. Perception of Obstacles to Innovate by Category of Firm



The difference with the segment of mature firms possibly can be explained by the fact that mature firms have already overcome those challenges that are especially threatening during the initial stages of a company startup. Young firms that face what Stinchcombe (1965) labels the liability of newness are, consequently, expected to perceive more obstacles, in general, than incumbent firms. Considering that young firms are, on average, five years old and mature ones are around 20 years old, there are 15 years of history that separate them, which makes a difference when approaching sources of establishment.

Regarding credit constraints faced by companies, HPYF do not statistically differ from the other categories. The same occurs with the proportion of companies that reinvest their profits. In terms of the average proportion of profits reinvested, however, HPYF seem to be reinvesting a slightly higher percentage of profits than HPMF, although the distribution is highly asymmetrical, as shown in Figure 15. The median in all categories is 0, and a few observations at the top end of the distribution are responsible for a higher mean. This indicates that the median firm is not reinvesting its profits, although a few at the top are doing so. This implies that comparisons, based on the median of categories, should not differ substantially.

[34] See Mairesse and Mohnen (2010) for a discussion on the endogenous nature of obstacles to innovation.

The above-mentioned findings may suggest that effective financial restrictions (which do not appear to be especially critical in any category with regard to credit constraints) may differ from perceived financial restrictions (to innovate in this particular case) and, therefore, what explains the underlying perception may not necessarily represent an objective restriction arising from a market failure, such as for instance, incomplete capital markets for innovation projects.

Entrepreneurs who are in the initial life cycle of the venture are less likely to have acquired the necessary skills to manage a business—skills that may be present (in the form of tacit knowledge) in those entrepreneurs (including serial entrepreneurs) whose business has survived for more than 20 years. Consequently, the necessary skills to successfully sell a new business idea through a good business plan; the capacity to knock on the adequate number of doors (possibly supplemented by the accumulated and nurtured social network of the owner over time); and the ability to manage scarce resources in uncertain conditions, are skills that may not be well developed by the entrepreneurs of young ventures. This explains the higher perception of financial problems for innovation and, if this is a fact, a call for policy instruments that can provide subsidies and soft loans may be justified.

Hiring and personnel qualifications. Given the definition of high potential discussed in Section 3.2, HPYF and HPMF are recruiting more by construction. It is, however, worth verifying whether or not the type of employees recruited differ between the categories (see Figure 16). Furthermore, more qualified employees appear to be recruited than LPYF and LPMF. This is consistent with the result that HPYF have a relatively higher proportion of employees with tertiary or more education than low-potential firms—young and mature. These results suggest that high-potential, young firms may offer higher quality jobs than low-potential ones—an outcome that is expected from high-impact firms.

Figure 14. Propensity to Reinvest Profits, by Category of Firm

Figure 15. Distribution of Profit Reinvestment, by Category of Firm

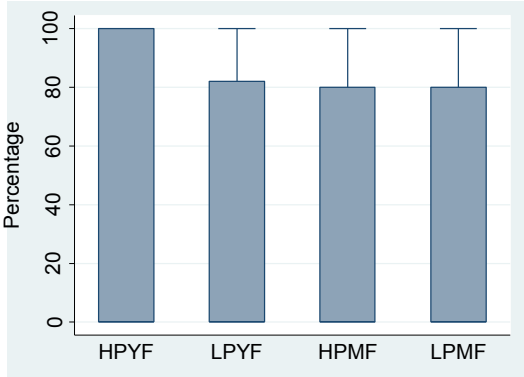


Figure 16. Type of Labor Demand, by Category of Firm

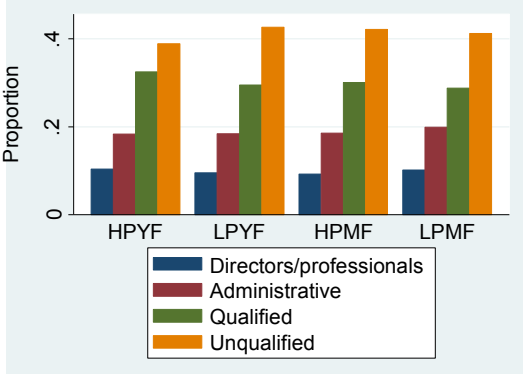
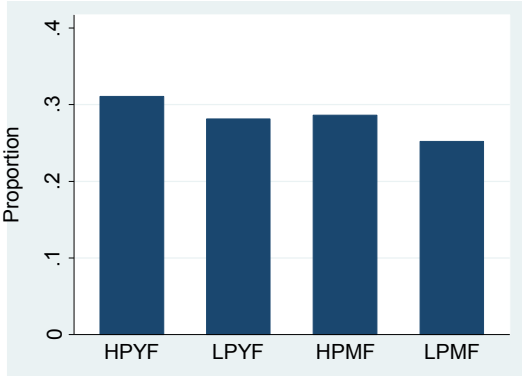


Figure 17. Personnel with Tertiary or More Education, by Category of Firm



5.2 The Traits of Owners

Entrepreneurs behind HPYF are slightly younger than the rest, with a mean age of 46 years. A high proportion of men is observed in the population of formal businesses (approximately 80 percent). A slightly higher participation is observed in the LPYF category (25 percent).

An interesting result is that owners of HPYF have statistically higher levels of educational attainment than mature firms. While 63 percent of owners in HPYF have reached tertiary education or more, in the other categories the proportion of owners who have reached this level fluctuates between 49 percent and 55 percent. In fact, the proportion of owners of HPYF with tertiary or more education is above the overall sample average of 54 percent.

Compared to LPYF, HPYF firms are less prone to be motivated by necessity and are more likely to have been established by those with the need for independence (business ownership), which relates to the taxonomy of necessity- and opportunity-driven entrepreneurs. In Table 9, it can be observed that approximately 23 percent of all business owners (see last column) mentioned that the discovery of a market opportunity was the main driver behind their entrepreneurship. The definition of GEM, however, also considers the need for independence in the definition of the indicator for Improvement-Driven Opportunity Entrepreneurial Activity. Adding up opportunity discovery and business ownership, to establish a similar definition to the one used by GEM, implies that in Chile 65 percent of entrepreneurs were driven by opportunity in 2007. This is consistent with the GEM figures published for 2007, which indicate that 63 percent of entrepreneurs were motivated by opportunity (GEM, 2007).

Finally, it must be noted that entrepreneurs in the formal sector are more educated than those in the mostly informal micro-entrepreneurship sector covered by the EME, especially those involved in HPYF. This raises a doubt regarding the capacity of the micro-sized sector to breed entrepreneurs who are able to establish firms that have the potential to generate an impact in the economy, at least in terms of the impact that high-potential entrepreneurship is expected to have.

Table 8. Mean Firm Traits Comparison between Firm Categories

Dimension	Variable	N	HPYF (14.7%) base category	LPYF (29.8%)	HPMF (15.2%)	LPMF (40.3%)	Total N=6,812
Business traits	**Age**	6,812	5.25	5.31***	21.63***	21.09***	14.14
	Exports	6,812	0.08	0.06	0.13	0.10*	0.09
	Certification	6,812	0.13	0.11	0.24***	0.16*	0.15
	R&D Performer	6,811	0.01	0.01	0.02	0.01	0.01
	Innovator	6,812	0.48	0.35***	0.54	0.38***	0.41
	Product innovation	6,812	0.36	0.27***	0.37	0.28***	0.30
	Process innovation	6,812	0.26	0.17***	0.33	0.21***	0.22
	Organizational innovation	6,812	0.22	0.13***	0.27	0.17**	0.18
	Marketing innovation	6,812	0.14	0.09**	0.17	0.11*	0.12
	Main obstacles hindering innovation	6,710					
	None		0.37	0.36	0.39	0.41***	0.39
	Financial problems		0.25	0.29	0.18**	0.22***	0.24
	Information problems		0.15	0.15	0.17	0.16	0.16
	Labor problems		0.14	0.11	0.17	0.13	0.13
	Use of pb. instruments	6,811					
	Applied and used it		0.13	0.10	0.19	0.14	0.13
	Did not apply		0.86	0.88	0.80	0.85	0.85
	Credit constraints	6,792	0.05	0.08	0.03	0.05	0.06
	Profit-reinvestment	6,019	0.44	0.36	0.46	0.38	0.39
	Percentage of profits re-invested (%)	6,019	34.86	29.22	33.73**	30.73	31.26

Dimension	Variable	N	HPYF (14.7%) base category	LPYF (29.8%)	HPMF (15.2%)	LPMF (40.3%)	Total N=6,812
	Hiring	6,812	1.00	0.47	1.00	0.49	0.64
	Hiring category (% over total hiring)	4,333					
	Proportion of Directors/Professionals		0.10	0.10	0.09**	0.10	0.10
	Proportion of Administrative		0.18	0.18	0.19	0.20*	0.19
	Proportion of Qualified		0.32	0.29*	0.30	0.29*	0.30
	Proportion of Non-Qualified		0.39	0.43	0.42**	0.41	0.41
	Tertiary education or more (% over total employment)	6,772	0.31	0.28	0.29***	0.25***	0.27

Note: Stars denote p-values at usual significance levels (* 0.10, ** 0.05, and *** 0.01).

Table 9. Mean Entrepreneurial Traits Comparison between Firm Categories

Dimension	Variable	N	HPYF N=971 base category	LPYF N=2,026	HPMF N=1,104	LPMF N=2,661	Total N=6,762
Traits of the owner or partner	**Male owner**	4,726	0.82	0.75*	0.86	0.83*	0.81
	Age	4,726	46.58	47.93**	54.55***	56.32***	51.97
	Tertiary or more educational attainment	4,726	0.63	0.55	0.55***	0.49***	0.54
	Prior status of employee	4,723	0.70	0.68	0.61***	0.58***	0.64
	Prior business ownership experience (Nº of businesses)	4,707	1.81	1.49	1.95	1.47*	1.59
	Motivation to start the business	4,724					
	Family tradition/Inheritance		0.16	0.16	0.24**	0.25***	0.21
	Necessity/Survival-related reasons		0.07	0.14***	0.06	0.10	0.10
	Found a market opportunity		0.26	0.25	0.21*	0.21*	0.23
	Business Ownership		0.47	0.41**	0.45	0.40*	0.42
	Willingness to be an employee again	3,004	0.19	0.28***	0.17	0.18	0.22
	Source of funding to launch the business	4,724					
	Own savings		71.61	73.07	73.42	74.34	73.42
	Loan (bank and financial institution)		18.34	14.42*	16.41	14.32**	15.20
	Other		10.05	12.51*	10.13	11.34	11.38

Note: Stars denote p-values at usual significance levels (* 0.10, ** 0.05, and *** 0.01).

5.3 Summary of Findings

Dimension	Main findings
Firm traits	
Composition of the sample and job creation	The sample of formal firms under study is composed by HPYF (14.7 percent), LPYF (29.8 percent), HPMF (15.2 percent) and LPMF (40.3 percent). This implies that three in every 20 firms in the sample are young and outperform their sector counterparts in terms of net job creation.
Size and sector	HPYF come in all colors and flavors. That is, they are found in all sizes and sectors. However, high-potential firms—young and mature—tend to be larger than their low-potential counterparts. A relatively higher proportion of HPYF perform in sector K, where R&D activities are included.
Exports	Eight percent of HPYF are exporters. Export patterns are comparable between firm categories (once size and sector effects have been controlled for).
Innovation	Forty-eight percent of HPYF can be considered as innovators. HPYF have a higher propensity to innovate compared to low-potential firms—young and mature—although not when compared to their mature, high-potential counterparts (HPMF). This holds true for all innovation types.
Obstacles to innovation and financial constraints	No big differences can be observed between the obstacles to innovate that are perceived by firms in each category. Even though a slightly higher proportion of HPYF has perceived financial obstacles (25 percent), this could be explained by the fact that HPYF are innovating more (endogeneity of obstacles variable).
Financial constraints	The rather low proportion of firms facing financial problems (24 percent approximately) suggests that market failures related to incomplete capital markets are not especially serious. This is especially so when verifying that the most frequent obstacle is None (almost 40 percent) and that most firms in all categories do not report to have faced financial constraints. This is also supported by a low application to and use of public instruments, in all categories.
Labor type and quality	HPYF have a relatively higher proportion of employees with tertiary or more education than low-potential firms—young and mature. This result suggests that HPYF can effectively constitute a source of higher quality jobs.
Owner traits	
Demographic characteristics	In general, men are more prone to be entrepreneurs than women. This study, however, shows that the proportion of men in HPYF is even higher (82 percent). They are also relatively younger.
Education	Owners of HPYF have attained a higher educational level compared to those in the rest of the firm categories, especially compared to those in mature ones. Sixty-three percent have attained tertiary education or more. High educational levels of individuals in HPYF within the formal sector substantially contrast with the low educational levels attained by high-potential entrepreneurs in the informal sector.
Prior	A higher proportion of owners in HPYF have prior professional experience (70

experience	percent). They also have a slightly higher level of prior business ownership experience.
Motivation	Owners of HPYF can be considered more opportunity-driven entrepreneurs than their counterparts in the other firm categories. On average, more than 70 percent of them started due to pull factors; i.e. a market opportunity or a desire for business ownership.
Access to credit	Financing the launch of the business with own savings is a common trend in all ventures. HPYF, however, have financed their startups with a relatively higher share of bank loans (almost 20 percent). This is a noteworthy result considering the common knowledge that younger firms tend to face more restrictions to bank credit (related to what is known as liability of newness).

6 DISCUSSION AND CONCLUSIONS

Results show that the business population in Chile (formal and informal) is quite heterogeneous in nature and in terms of the impact it has over the economy—at least in terms of job creation. The owners behind these businesses exhibit some differing traits, with education being the most important. That is, high-potential businesses are, on average, managed by more educated individuals.

This paper also shows that identifying high-potential young ventures is as difficult as locating Wally in a flea market. They do not represent more than 15 percent of the business population, implying that horizontal policies to promote business development may dilute in a population of low-performing businesses.

This result is consistent with the initial hypothesis that states that entrepreneurship is of a highly heterogeneous nature and, as such, the contribution to economic development from different entrepreneurial businesses is expected to differ. Some ventures are born with the aim to remain small, local, and owner-operated, while others wish to scale up and reach global markets. Clearly, the impact of these two ventures is expected to differ, at least in terms of the number and quality of jobs that are created.

Finally, it is important to clarify that this paper has conducted a simple comparison exercise and causalities cannot be drawn from its results. Notwithstanding, this exercise constitutes a preliminary step to comprehend the sources of entrepreneurial heterogeneity in Chile. The following step will require an understanding of why high-potential businesses in

Chile perform the way they do and how their performance relates to the key characteristics discussed in this paper. For example, the systematic finding that high-potential businesses are run by educated individuals raises the question of the role that education has as a mediator and moderator of business performance. Does education exclusively create skills? Does it generate functional social capital? Does it yield financial capital? In a society where access to quality education has been determined by the socioeconomic status of the individual, this question is of significant relevance. Furthermore, it raises the question of the real potential of entrepreneurship as a democratization mechanism within a society where education matters to create those high-impact ventures that are sought to foster economic development. If, however, education is affordable by only a few, it may be a serious issue.

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8 APPENDIX

8.1 Appendix 1: Definition of Variables for Characterizing High-Potential Entrepreneurs

Table 10. Definition of Variables Used to Characterize Type of Entrepreneurs

Dimension	Variable	Type	Description
Type of entrepreneur	**Category**		
	Own-account	Binary	Includes individuals who declared to be in an employment status of own-account and whose business did not create any job positions, neither when they started nor later at the moment of being surveyed.
	High-potential entrepreneur	Binary	Comprise individuals who have created job positions since their business was launched. It includes (i) those whose business did not have employees when it was launched, but did have at the time of being surveyed; and (ii) those who had more employees at the time of the interview than when they launched their business.
	Employer	Binary	Includes the rest of employers, i.e. those who have provided jobs, although not in an increasing way, as defined in the previous category.
Personal traits	**Gender**	Binary	1 if male
	Age	Continuous	Age of the founder of the business in levels.
	Type of primary school attended		This dimension can be used as a proxy for socioeconomic background of the individual
	Public	Binary	1 if the individual attended a public school during primary education
	Private subsidized	Binary	1 if the individual attended a private subsidized school during primary education
	Private	Binary	1 if the individual attended a private school during primary education
	Motivation to be independent		Captures the main reason why an individual decides to work independently as opposed to be an employer. This variable may capture some dimensions of the personality of the individual.
	Independence/Being one's boss	Binary	1 if the individual likes not having a boss. Captures need for independence.
	Own fulfillment and enjoyment	Binary	1 if the individual finds intrinsic value in being independent. For example, because it is more fun to work independently, or implies higher satisfaction, or allows taking advantage of own skills. This is related to those individuals who are driven by the need for achievement and who enjoy the process and challenge of accomplishing a given task.
	Economic achievement	Binary	1 if the individual considers independence as a way to earn more money than when being employed.
	Role models	Binary	1 if a member of the family (father or mother) has performed as an employer.
Human capital	**Tertiary or more educational attainment**	Binary	1 if the individual reached tertiary or higher levels of education. Tertiary education includes technical centers, professional institutes, and universities.
	Training	Binary	1 if the individual has been involved in training in the last 3 years.
	Area of training (based on those who were involved in training)		
	Business related	Binary	1 if the individual has been involved in business-related training, such as administration, accounting, sales, marketing, commercialization, and customer care.
	Information technologies	Binary	1 if the individual has been involved in information technologies training.
	Prior status as employee	Binary	1 if the individual has worked as a paid employee before working independently.
	Reason to quit prior condition of employee (based on those who have		

Dimension	Variable	Type	Description
	been employees before)		
	To own a business	Binary	1 if the individual wanted to own a business. This motivation can be used as a proxy for entrepreneurs who were voluntarily pulled into their current situation of independence.
	The opportunity emerged	Binary	1 if the individual faced an opportunity. This motivation can also be used as a proxy for entrepreneurs who were voluntarily pulled into their current situation.
	Prior job-related reasons	Binary	1 if the individual is currently independent due to job-related reasons. For example: prior job termination, low wage, job dislike, and job resignation.
	Willingness to be an employee again	Binary	1 if the individual is willing to go back to a condition of employee. This variable captures the attitude towards the situation of being an entrepreneur versus being employed.
Business traits	**Time in current business**	Continuous	Number of years the individual has been performing the current activity independently.
	Motivation to start the business		Captures the main driver to start the current business activity. It is helpful to distinguish individuals who were pulled versus pushed into entrepreneurship. Only asked in EME2.
	Family tradition	Binary	1 if the current activity is a consequence of family tradition.
	Necessity/survival related reasons	Binary	1 if the individual has been pushed to perform the current activity because a waged job could not be found, or because the person was fired from a prior job, or to complement family income. All these reasons are more related to the GEM taxonomy of necessity-driven entrepreneurs.
	Opportunity- and independence-related reasons	Binary	1 if the individual discovered and decided to exploit an opportunity found in the market, wanted to own a business, make his/her own decisions, or have more time flexibility. These can be considered as individuals who were pulled into entrepreneurial activity and can be related to the GEM taxonomy of opportunity-driven entrepreneurs.
	Formal inscription in tax office	Binary	1 if the individual has formalized his/her activities in the tax office—as an independent worker, or a limited liability company, or as other kind of company.
Financial traits	**Source of funding to launch the business**		
	Own savings and acquaintance loans	Binary	1 if the individual used own savings or had access to loans from family and friends to launch the business.
	Formal banking	Binary	1 if the individual used bank loans or other bank products (credit card or cash extension) to finance the launch of the business.
	Government program	Binary	1 if the individual used a program from the Government (Fosis, Sercotec, INDAP, etc.) to finance the launch of the business.
	Credit constraints	Binary	1 if the individual has been rejected a loan in the last year.
Environment	**Main obstacles hindering business growth**		
	Lack of demand	Binary	1 if the individual perceives lack of demand as an obstacle hindering business growth.
	Lack of financing	Binary	1 if the individual perceives lack of financing as an obstacle hindering business growth.
	Labor	Binary	1 if the individual perceives lack of qualified employees or high cost of recruiting new employees as an obstacle hindering business growth.
	Government	Binary	1 if the individual perceives regulations, legal norms, and taxes as highly costly and, therefore, as an obstacle hindering business growth.
	Business expectations		
	Market expansion	Binary	1 if the individual expects to expand its market through new customers or new product supply. This alternative was only asked in EME2.
	Remain the same	Binary	1 if the individual aims to continue the current business under the same conditions.

8.2 Appendix 2: Definition of Variables for Characterizing High-Potential Firms

Table 11. Definition of Variables Used to Characterize Type of Entrepreneurships

Dimension	Variable	Type	Description
Type of entrepreneurship	*High-potential, young firm (HPYF)*	Binary	Includes firms that: (i) the ratio of net jobs created (employees hired minus employees dismissed or who resigned) to the average level of employment between 2006 and 2007, **was higher** than the mean ratio at the sector level; and (ii) was **ten years old or less** in 2007.
	Low-potential, young firm (LPYF)	Binary	Includes firms that: (i) the ratio of net jobs (employees hired minus employees dismissed or who resigned) to the average level of employment between 2006 and 2007, **was lower** than the mean ratio at the sector level; and (ii) was **ten years old or less** in 2007.
	High-potential, mature firm (HPMF)	Binary	Includes firms that: (i) the ratio of net jobs (employees hired minus employees dismissed or who resigned) to the average level of employment between 2006 and 2007, **was higher** than the mean of the ratio at the sector level; and (ii) was **11 years old or more** in 2007.
	Low-potential, mature firm (LPMF)	Binary	Includes firms that: (i) the ratio of net jobs (employees hired minus employees dismissed or who resigned) to the average level of employment between 2006 and 2007, **was lower** than the mean of the ratio at the sector level; and (ii) was **11 years old or more** in 2007.
Business traits	**Age**	Continuous	Number of years since the firm registered in the tax office.
	Exports	Binary	1 if the firm undertook direct exports during the year covered by the survey.
	Certification	Binary	1 if the firm has obtained any certification.
	Size		
	Micro	Binary	1 if firm sales were lower than 2,400 UF in 2007.
	Small	Binary	1 if firm sales were between 2,401-25,000 UF in 2007.
	Medium	Binary	1 if firm sales were between 25,001- 100,000 in 2007.
	Large	Binary	1 if firm sales were higher than 100,001 in 2007.
	Sector		
	A. Agriculture and Forestry	Binary	1 if the firm's main sector of activity during the year covered by the survey was Agriculture and Forestry.
	C. Mining and Quarrying	Binary	1 if the firm's main sector of activity during the year covered by the survey was Mining and Wuarrying.
	D. Manufacturing	Binary	1 if the firm's main sector of activity during the year covered by the survey was Manufacturing.
	E. Electricity, Gas, and Water Supply	Binary	1 if the firm's main sector of activity during the year covered by the survey was Electricity, Gas, and Water Supply.
	F. Construction	Binary	1 if the firm's main sector of activity during the year covered by the survey was Construction.
	G. Wholesale and Retail, Other	Binary	1 if the firm's main sector of activity during the year covered by the survey was Wholesale, Retail, and other related activities.
	H. Hotels and Restaurants	Binary	1 if the firm's main sector of activity during the year covered by the survey was Hotels and Restaurants.
	I. Transport, Storage, and Communications	Binary	1 if the firm's main sector of activity during the year covered by the survey was Transport, Storage, and Communications.
	J. Financial Intermediation	Binary	1 if the firm's main sector of activity during the year covered by the survey was Financial Intermediation.
	K. Real Estate, Renting, and Business Activities	Binary	1 if the firm's main sector of activity during the year covered by the survey was Real Estate, Renting, and Business Activities.
	O. Other Community, Social, and Personal Activities	Binary	1 if the firm's main sector of activity is Other Community, Social, and Personal Activities.

Dimension	Variable	Type	Description
	R&D performer	Binary	1 if the firm was engaged in R&D activities during the year covered by the survey.
	Innovator (overall)	Binary	1 if firm has introduced a product, process, marketing or organizational innovation[35].
	Product innovation	Binary	1 if firm has introduced a product innovation.
	Process innovation	Binary	1 if firm has introduced a process innovation.
	Organizational innovation	Binary	1 if firm has introduced an organizational innovation.
	Marketing innovation	Binary	1 if firm has introduced a marketing innovation.
	Main obstacles hindering innovation		
	None	Binary	1 if the firm did not perceive any problem at all.
	Financial problems	Binary	1 if the firm perceives that difficulties to find adequate funding are hindering innovation.
	Information problems	Binary	1 if the firm perceives that high technical risk or lack of information regarding technologies and markets are hindering innovation.
	Labor problems	Binary	1 if the firm perceives that employee's lack of adequate experience and qualifications or their reluctance to change is hindering innovation.
	Use of public instruments		
	Applied and used it	Binary	1 if the firm applied and used public instruments aimed at productive development.
	Did not apply	Binary	1 if the firm did not apply to public instruments aimed at productive development.
	Credit constraints	Binary	1 if the firm has faced credit constraints in the last year. The variable takes value 0 if the firm has been approved a credit or has not applied or does not need one. The variable takes value 1 if the firm has applied for a credit but has been rejected or did not accept the amount or conditions offered.
	Profit-reinvestment	Binary	1 if the firm re-invested 2007 profits in 2008.
	Percentage or profits re-invested	Continuous	Percentage of 2007 firm profits that were re-invested in 2008.
	Hiring	Binary	1 if the firm hired employees during the year covered by the survey.
	Hiring category		
	Proportion of Directors/Professionals	Continuous	Proportion of directors or professionals over total hiring.
	Proportion of Administrative	Continuous	Proportion of administrative over total hiring.
	Proportion of Qualified	Continuous	Proportion of qualified personnel over total hiring.
	Proportion of Non-qualified	Continuous	Proportion of non-qualified personnel over total hiring.
	Tertiary education or more	Continuous	Proportion of total personnel that has tertiary education or more.
Traits of the owner/partner	**Gender**	Binary	1 if male.
	Age	Continuous	Age of the owner or partner.
	Tertiary or more educational attainment	Binary	1 if the individual reached tertiary or higher levels of education. Tertiary education includes technical centers, professional institutes and universities. Further studies include Master, PhD, or Post Doctorate).
	Prior status of employee	Binary	1 if the individual has worked as a paid employee before working independently.
	Prior business ownership experience	Continuous	Number of firms in which the individual has been involved earlier (as owner or partner) in addition to the current business.
	Motivation to start the business		
	Family tradition/Inheritance	Binary	1 if the current activity is a consequence of family tradition or business inheritance.
	Necessity/Survival-elated reasons	Binary	1 if the individual has been pushed to perform the current activity because a waged job could not be found, or because the person was fired from a prior job or to complement family income.

[35] See Oslo Manual (2005) for a definition on types of innovations.

Dimension	Variable	Type	Description
			These motivations are related to the GEM taxonomy of necessity-driven entrepreneurs.
	Found a market opportunity	Binary	1 if the individual discovered and decided to exploit an opportunity found in the market. These can be considered as individuals who were pulled into entrepreneurial activity and can be related to the GEM taxonomy of opportunity-driven entrepreneurs.
	Business ownership	Binary	1 if the individual wanted to own a business, to make decisions of his/her own, and have more time flexibility. These people, driven mainly by the need for independence, also fall under the GEM taxonomy of opportunity-driven entrepreneurs.
	Willingness to be an employee again	Binary	1 if the individual is willing to go back to work as an employee. This variable captures the attitude towards independent versus employee status.
	Sources of funding to launch the business		
	Personal	Continuous	Proportion financed through own or family savings.
	Loans	Continuous	Proportion financed through loan from banks or other financial institutions.
	Other	Continuous	Proportion financed through public funding or other sources.