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Entrepreneurship at the Periphery: Exploring Framework Conditions in Core and Peripheral Locations

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This paper reports the findings of the first academic study in Latin America, and one of the few in any emerging economy, to explore entrepreneurial perceptions and activity in peripheral geographic locations. A survey of experts included 139 respondents from three peripheral regions and two core regions in Chile. A key finding is that those located at the periphery perceived critical entrepreneurial resources and access to markets less favorably than their counterparts at the core, but surprisingly, they perceived greater business opportunity in their area. A further survey of 2,200 respondents concerning actual entrepreneurial activities among the total adult population revealed no differences between peripheral and core regions. This study revives the debate about specific regional policies for fostering the growth of local business, and the entrepreneurial framework conditions required at the regional level in emerging economies.

Introduction

Recent research studies have focused on the role of new businesses in regional economic growth (Acs, 2010; Acs & Armington, 2004; Feldman, Francis, & Bercovitz, 2005; Glaeser & Kerr, 2009; Haltiwanger, Jarmin, & Miranda, 2009). Moreover, empirical studies have highlighted the role of entrepreneurship and the establishment of new ventures as a mechanism for innovation, economic growth, and the creation of employment (Thurik & Wennekers, 2004). The relative contribution of new ventures and business growth to economic development is controversial (Fritsch & Mueller, 2004) and may vary over time and from country to country (Acs, Amoros, Bosma, & Levie, 2008; Henrekson & Johansson, 2008). Also, the role of entrepreneurship as a remedy for economic underperformance in some regions of Europe has been a key strategy of national and European Union (EU)-wide governmental policy for many years (European Commission, 2003; OECD, 1998).

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The seminal work on economic location of industries (Marshall, 1895; Weber, 1909) distinguished "core" from "peripheral" economies on the basis of geographic location. Recent literature suggests that uneven distribution of human, social, and financial capital in a nation, reinforced by the effects of social and cultural identification and migration, can set up a virtuous circle of entrepreneurship at the core and a vicious cycle of dependence at the periphery (Acs & Armington, 2004; GEM, 2009; Malecki, 1994; Mueller, Van Stel, & Storey, 2008; Westlund & Bolton, 2003). Some studies have also suggested that this dependence can result in unintended negative effects of regional policy for the peripheral regions in a country (Mueller et al.), though on the basis of limited evidence. This mismatch between theory, practice, and policy, and the gaps in the evidence, are the starting point of this study.

According to the Global Entrepreneurship Monitor's (GEM) National Report on Chile (GEM, 2007), a high level of entrepreneurial activity yields above average economic growth; even more among nations with similar economic structures, the correlation between entrepreneurship and economic growth is highly significant. For this study, the term "entrepreneurial framework conditions" describes the economic factors and public policies that affect the perceived opportunities for entrepreneurship and the capabilities of the entrepreneurs themselves. The GEM report noted that perceived opportunities and capabilities are "fairly high" in most Latin American countries, where starting a business is a more common event than in high-income countries. The particular situation in Chile, which was a fast-growing emerging economy through the 1990s and early years of the twenty-first century, is no longer encouraging. There has since been a decline in entrepreneurship, despite government efforts to promote entrepreneurial activity, increased opportunities arising from economic development, and a significant number of free-trade agreements with the United States, the UK, the EU, and several emerging and developed economies in South East Asia.

While the various GEM country reports provide analysis of entrepreneurship issues in different countries and comparisons between countries, to date there has been little emphasis on comparing regions within countries, particularly from the perspective of comparing core and peripheral regions (Johnson, 2004). Such differences may be a particular feature of countries in which peripheral areas are significantly distant from core regions (Christaller, 1966; Mueller et al., 2008; Reynolds, Storey, & Westhead, 1994).

In the light of that background, this paper examines the varying perceptions of experts in both core and peripheral locations about the conditions required for the development and enhancement of entrepreneurial activity at national and regional levels. It reports the first academic research to study this issue specifically at regional level in Latin America, and therefore makes a significant contribution to the emerging literature of entrepreneurship and regional development in that continent.

The data for analysis were collected from GEM's National Report on Chile. The overall purpose of the GEM project is to investigate the impact of entrepreneurship on economic development (Hindle, 2006; Reynolds et al., 2005; Sternberg & Wennekers, 2005). The GEM intention to investigate, inform, and influence national policy on entrepreneurship is the reason why there has been a tendency to analyze data at the macro level. However, only a few studies (Klyver, 2008) have analyzed the data at the regional level, taking the individual entrepreneur as the unit of analysis. Consequently, the current study is focused on entrepreneurial activities located in core versus peripheral areas within a country as the unit of analysis, allowing micro-level insights to be drawn from the analysis of the GEM data.

Theoretical Development and Background

There is a rich literature on the role of geographical location as a determinant of economic activity, comparing centrally located core areas with peripheral regions within a country, from the work of Marshall (1895) and Weber (1909), to recent studies by, for example, Saxenian (2006), Mueller et al. (2008), or Van Stel and Suddle (2008). The relationship between economic growth and geography was originally explained as the attraction of favorable transportation links or natural resources in specific regions, which evolved into industrial districts and then into urban agglomerations. Christaller (1966) proposed the central "place principle" of economic activity, suggesting a definite ordering of communities in a region, from villages in which only the lowest-order economic activities exist up to the major conurbations that host the highest order of economic activity.

Taking the economic-sociologic perspective, Frank (1969, 1984) suggested that at the inter-country level as well as at the regional level, resources flow from the periphery of poor and underdeveloped area to the core or metropolitan area, which actually takes advantage of the periphery. The imbalanced polarization between peripheral and core areas and the dependent accumulation of capital may lead to world crises similar to some of the causes to the twentieth century world wars; hence the structural dependency of the underdeveloped areas is an important field of research (Frank, 1981).

It has been suggested by Cooper (1993) that geographical factors may be negligible in the case of high-technology companies, which are characterized by low-weight-high-value inputs and outputs, but the evidence is mixed. The portrayal of Silicon Valley by Saxenian (2006) demonstrates the importance of location, yet notes that entrepreneurs with strong social networks there can operate effectively from external locations. On the other hand, previous research (Westlund & Bolton, 2003) has also demonstrated that an increasing level of entrepreneurship could be interpreted as a result of interaction, a social, collective phenomenon based on mutual trust and obligations. In an era of diminishing natural resources, this phenomenon may be better explained by the notion of density of highly educated and productive human capital (Florida, 2003). Densities in peripheral areas are, on average, lower than in core regions (Delgado, Porter, & Stern, 2010; Mueller et al., 2008; Tamasy, 2006; Van Stel & Suddle, 2008). This phenomenon may be due to the movement of a highly educated workforce from periphery to places where employment and entrepreneurship opportunities are superior, which may in turn result in the average start-up in a peripheral region having a lower quality of human capital available than a typical counterpart in a core region.

Large variations in regional employment growth and the rate of new firm start-ups are a striking feature of the U.S. economy (Armington & Acs, 2002; Porter, 2003). Also, regional income disparities were greater in several rich economies during the recent economic recession and were particularly large in Britain and the United States (The Economist, 2011). While a significant body of work explores why some regions experience more rapid growth than others (Barro & Sala i Martin, 1995; Fujita, Krugman, & Venables, 1999; Glaeser, Kallal, Scheinkman, & Shleifer, 1992; Porter, 1998; Saxenian, 1994), there is increasing academic and policy interest in the particular role in growth played by entrepreneurship (Davis, Haltiwanger, & Schuh, 1996; Haltiwanger et al., 2009). For example, a significant debate is under way regarding the role of the regional economic environment in shaping differences in the rate of regional entrepreneurship and overall economic performance (Feldman, 2001; Glaeser & Kerr, 2009; Porter, 1998; Saxenian, 1994). Moreover, given that entrepreneurs are essential agents of innovation, an

environment characterized by strong clusters of innovative enterprises should foster entrepreneurial activity, since regions are a key level at which innovative capacity is shaped and economic processes are coordinated and governed (Delgado et al., 2010).

Shefer and Frenkel (2002) found that investors in high-technology new ventures were reluctant to invest in peripheral regions even though location was not shown to affect such venture performance. The differential advantage of such core locations as Silicon Valley in attracting good people and being noticed by the wider world tends to divert investors' attention from peripherally located ventures (Roberts & Barley, 2004; Saxenian, 2006). As a result, traditional industries show higher levels of concentration in the peripheral regions than high-technology enterprises. Governments try to reverse that unfavorable tendency by offering generous grants to attract investment in peripheral areas, but with limited success (Frenkel, Shefer, & Roper, 2003). It is also conceivable that mobile start-ups founded at the periphery, who realize that they are less effective because of their location, will move to more central locations (Van Stel & Suddle, 2008).

Government policies in many countries are designed to boost and support entrepreneurship in peripheral regions (Lerner, 2009). It is far from obvious that potential regional policies designed to maximize the number of start-ups in peripheral areas will have the desired effects on the regional economy. Lerner (2009) has asserted that many entrepreneurship promotion programs have not been effective and that, far more often than not, they have actually failed. One way in which governments can effectively promote the entrepreneurial sector is through policies that create an overall climate conducive to entrepreneurship and venture capital. Examples of such policies, according to Lerner, include legal systems that recognize convertible preferred stock and legislation that facilitates technology licensing from universities.

Economic geography has played a key role in the study of regional entrepreneurship. The literature on this topic indicates that the tendency toward geographical concentration has become more marked over time (Cooke & Leydesdorff, 2006). Analyzing the effects of entrepreneurship on regional development, Fritsch and Mueller (2004) found the indirect effects of new business formation to be of greater magnitude than the direct effects, in terms of new jobs created in the new entities. Among the important indirect effects included in their analysis are the crowding out of competitors, the improvement of supply conditions, and greater competitiveness.

It is far from obvious that regional policies designed to maximize the number of start-ups in peripheral areas will have the desired effects on the regional economy. Studies by Florida (2003); Psaltopoulos, Stathopoulou, and Skuras (2005); and West, Bamford, and Marsden (2008) have recommended extension of the traditional formula of financial incentives and the establishment of business incubators. The main task of regional development policy should include the provision and fostering of entrepreneurial orientation, social networks resources, knowledge resources, and the attraction and retention of talented and creative people to be the driving force behind regional development. Local agents should be encouraged to be active participants in innovative processes and networks designed to identify economic opportunities (Cannarella & Piccioni, 2006). Policy instruments should aim to assist local businesses in "disembedding" themselves from the local market (Psaltopoulos et al.) and thus reduce the perceived risk associated with the volatility of small markets.

It is also true that peripheral areas within emerging and developing economies are usually economically weaker than in the developed world, or are even deprived (Cannarella & Piccioni, 2006; Frank, 1981). This phenomenon has been confirmed by studies conducted in El Salvador (Lanjouw, 2001) and Canada (Polese & Shearmur, 2006). In the field of entrepreneurship, more specifically, it has been supported to a certain

extent by empirical studies in five countries of the EU and in the United States. Todling and Wanzenbock (2003) found marked regional differences in start-up activity in Austria, with respect to both intensity and characteristics. The Vienna region displayed significantly above-average start-up rates as well as more favorable structural characteristics of new firms. In Germany, Fritsch (1997) found a positive relationship between new-firm formation and regional population density, more than half of all start-ups occurring in the heavily populated areas with the larger economic potential.

In the United Kingdom, the core region of Greater London and the South-East of England was shown by Johnson (2004) to outperform peripheral regions as an attractive center for entrepreneurial activities, with London enjoying a very substantial advantage with respect to new-business start-ups. Burke, Fitzroy, and Nolan (2009) discerned better employment opportunities and more self-employed individuals in the core South than the peripheral North, though on average those were paradoxically worse performers and created fewer jobs. In a survey of more than 12,000 new businesses in all sectors, Headd (2003) found for new businesses of all industries that being located in a suburban area was correlated with a higher likelihood of nonsurvival.

Literature on economic geography explains the general economic advantage of highly dense core regions (Davelaar & Nijkamp, 1987; Florida, 2003; Todling & Wanzenbock, 2003; Van Stel & Suddle, 2008). Included in the potential benefits they offer to new ventures are access to funding and various critical resources, a high density of potential entrepreneurs, a highly educated population, knowledge spillovers from universities and research institutions; a large potential market in terms of customers, suppliers, and services; and market opportunities.

Drawing on our review of the entrepreneurship and regional development literature, we propose six hypotheses comparing entrepreneurship in core versus peripheral regions. Following the GEM model (Levie & Autio, 2008; Reynolds et al., 2005) we include entrepreneurship experts' perceptions as complementary to "hard" data. Where the two different sources can be compared, external validity of the results can be tested. If both agree, the credibility of the results is reinforced, providing more confidence to policy makers. If the experts' perceptions are different from the actual "hard" data, then this would be an interesting finding for policy formulation. The hypotheses link the geographical location of entrepreneurship experts to their perceptions of the economic factors and public policies that affect the opportunity for entrepreneurship in their location.

Hypothesis 1: Entrepreneurship experts located in central regions have more favorable perceptions of accessibility to critical entrepreneurial resources than those located in peripheral regions (where "critical entrepreneurial resources" are funding, technology, education, suppliers, communication, and basic utilities services).

Hypothesis 2: Entrepreneurship experts located in central regions have more favorable perceptions of access to markets than those located in peripheral regions.

Hypothesis 3: Entrepreneurship experts located in central regions have more favorable perceptions of entrepreneurial opportunities than those experts located in peripheral regions.

The study of experts' perceptions may not provide a sufficiently in-depth description of a phenomenon without examination of managerial behavior in practice, to assess the possibility of a discrepancy between attitudes and actions. The classic case of this behavioral gap is a seminal study of Chinese ethnicity in the United States by LePiere (1934). In the field of entrepreneurship, it has been recently explored by Acs and Szerb

(2010, p. 54) who found gaps between level of entrepreneurial attitude, level of activities and level of aspirations among 71 countries. In relation to investors in entrepreneurial activity, this phenomenon was reported by Shepherd (1999) who found that the espoused investment criteria of venture capitalists were different from those they used in practice. As previous research suggested that actual behavior does not necessarily follow attitudes, we further examined different forms of entrepreneurial activities.

Following the reasoning of hypotheses 1–3 with regard to perceptions, we hypothesize that the following activities show significant differences between peripheral and core regions:

Hypothesis 4: The incidence of actual intentions and expectations to start a business is lower in peripheral than in core regions.

Hypothesis 5: The incidence of actual start-up efforts and nascent businesses is lower in peripheral than in core regions.

Hypothesis 6: The proportion of entrepreneurial business older than 42 months is lower in peripheral than in core regions.

Methodology

Context of the Study

Though hypotheses 1–3 have international relevance, our study was conducted in Latin America, an under-researched continent that has recently attracted more entrepreneurship studies (Brenes, Haar, & Requena, 2010; West et al., 2008). Specifically, the fieldwork took place in Chile which is 26th out of 71 countries ranked in the Global Entrepreneurship and Development Index (Acs & Szerb, 2010). Though Chile is a fast-growing emerging economy in Latin America, it ranked very low in terms of income equality as measured by the Gini coefficient (Zhou, Biswas, Bowles, & Saunders, 2011, p. 10).

The geography of Chile, which extends 4,500 km from north to south, with the core regions at the center of the country, provides an advantageous clear distinction between peripheral and core regions. Also, the theory of dependency and structural underdevelopment was demonstrated by Frank (1969, 1984) in studying the Chilean economy over four centuries of capitalism which exploited resources from the periphery in favor of metropolitan centers. Frank (1969, p. 11) asserted "the example of Chile helps to confirm these hypotheses." This study focuses on the concept of peripherality from the economic geography perspective, which is concerned with the effect of distance from the economic core within a country, where it is well known that a rural region can be a positive entrepreneurial environment if it is the location of innovative entrepreneurs (Malecki, 1994). Thereafter, we operationalize that concept in the Chilean context by designating as "peripheral" urban and rural areas more than 800 km from the core locations around metropolitan Santiago.

Peripheral data collection was conducted in one region of northern Chile and two regions in southern Chile, and core locations were within the metropolitan areas of Santiago and Valparaíso. Focusing the study on such quasi-homogeneous sub-national regional levels delivers the opportunity to collect in-depth information about existing differences between peripheral and core areas in terms of entrepreneurial conditions, entrepreneurs' behavior, and experts' perceptions of opportunities for developing new ventures.

Data Collection

The template for the design of our study was the regional data collection procedure implemented by the national team gathering data for GEM's *2007 Reporte Nacional de Chile* (GEM, 2007). To evaluate the different perceptions of the economic conditions and public policies that affect the development of opportunity entrepreneurship in a region, we followed the lead of two national expert surveys of the GEM methodology: Levie and Autio (2008) and Reynolds et al. (2005). As a first stage, structured personal interviews were conducted with 36 key informants, defined as "entrepreneurship experts," including: active entrepreneurs; investors financing entrepreneurs; academics and government policy makers dealing with entrepreneurship; and providers of public and private services to entrepreneurs.

This method of studying the problem facilitated a socially constructed learning process, leading to a second stage in which data were collected from 139 more entrepreneurship experts by a personally distributed self-completion questionnaire. The *Reporte Nacional de Chile* database was used in this context to examine significant differences between the perceptions of experts at the periphery and at the core in regard to economic conditions and public policies potentially affecting the incidence of opportunity entrepreneurship. The criteria for selection as respondents were related to their peripheral location and to the significance of their business or professional activity to local economic development. The aim in the micro-regions was to measure the level of entrepreneurship activity, and the impact of incidental factors, opportunities, and threats on entrepreneurial development in these areas of the country, compared with the metropolitan-core area.

Sample Characteristics

This study follows the regional data collection of the GEM Chile 2007 study. "Core entrepreneurship experts" (CEEs) are individuals who practice their entrepreneurial activities in Santiago or Valparaíso, the two central regions. The former is the capital of Chile, and concentrates 40% of the country's population and economic activity; the latter is a metropolitan area 90 km distant. These two together are usually considered the main central region of the country. "Peripheral entrepreneurship experts" (PEEs) reside and operate at the sub-national level in the south (Los Rios and Los Lagos regions) and the north of Chile (Atacama region); these are more than 800 km from the core regions of Santiago and Valparaíso. Their entrepreneurial activities were dominantly related to industries based on natural resources, such as mining and agribusiness in northern Chile or fishing, dairy, and forestry in the south. These sectors are the most important in the Chilean economy, generating a high percentage of employment outside the metropolitan areas and exporting at high levels of international competitiveness (Felzensztein & Gimmon, 2008, 2009; Felzensztein, Gimmon, & Carter, 2010). Academics and public policy officials working in the university and service sector contributed as key expert respondents, to validate the findings.

The final sample contained 61 CEEs and 78 PEEs, all of them practicing businessmen or active entrepreneurs (Levie & Autio 2008). Table 1 shows more than half (57.1%) of the entrepreneurship experts were active entrepreneurs. A further analysis shows that a quarter were entrepreneurship service providers, 14% were policy makers, and 3% were investors. Table 1 further displays their respective demographic profiles, in terms of age, gender, and education.

Tests were conducted to evaluate the similarity of the subsamples. Pearson's chi-square test shows that they were significantly different ($p > .05$) only with respect to the

Table 1

Experts' Sample Composition (N = 139)

Respondent characteristic		Total	Core entrepreneurship experts	Peripheral entrepreneurship experts
Demographics	Average age	46.2 years	45.7 years	46.6 years
	Male (%)	115[†] (82.7)[‡]	50 (82.0)	65 (83.3)
	Female (%)	24 (17.3)	11 (18.0)	13 (16.7)
Educational attainment	Vocational or technical training (%)	14 (10.1)	5 (8.2)	9 (11.5%)
	University or college degree* (%)	126 (90.6)	60 (98.4)	66 (84.6)
	Professional training (%)	91 (65.5)	43 (70.5)	48 (61.5)
	Graduate study (%)	31 (22.3)	18 (29.5)	13 (16.7)
Expert specialization	Entrepreneur (%)	72 (57.1)	32 (60.4)	40 (54.8)
	Investor (%)	4 (3.2)	3 (5.7)	1 (1.4)
	Policy maker (%)	17 (13.5)	3 (5.7)	14 (19.2)
	Service provider (%)	33 (26.2)	15 (28.3)	18 (24.7)

* Significant difference: Pearson's chi-squared = 7.628; $p < .01$
[†] Valid cases for each variable.
[‡] Percentage based on total valid cases for each variable.

relative proportions with a university or college degree, which was significantly higher in the CEE group ($p < .01$).

Following the survey of the entrepreneurship experts, we further analyzed the responses of the general adult population in Chile. These responses were collected within the Adult Population Survey (APS) of the GEM study in 2007. The APS of GEM aims to provide harmonized estimates of the level of entrepreneurial activity. This survey involves locating a representative sample of the adult population to create measures of entrepreneurial activity that represents the entire country. The methodological and procedural aspects of the APS have been described and explained by Reynolds et al. (2005). The 2007 APS consisted of telephone interviews with 4,008 respondents aged 18 to 65 from 16 different regions of Chile. In the present study, we used 2,840 informants in the five regions in which the experts had been surveyed. The sample in the two core regions was 1,531 from a total population of 8,374,529; in the three peripheral regions, the population was 1,459,864 and the eventual sample was 1,309. To take account of the fact that penetration of telephone landlines differs significantly between the peripheral and core regions in the study, the size of subsamples from the periphery was inflated as a measure to minimize potential bias in the results.

Measurement

The data collection methodology of the GEM is based on the worldwide standardization of questionnaires. The format adopted for our study consisted of 82 questions in 5-point Likert scale answer format, grouped in 17 categories extracted from the nine key factors of entrepreneurship: financial market; government policies; government programs; education and training; R&D transference; legal and commercial infrastructure; local market opportunity; physical infrastructure access; social and cultural policies, among others. Each is measured on multi-item scales containing between five and seven items.

Table 2

Scale Reliability

Scales	Number of items	Cronbach's alpha
Entrepreneurial resources		
Availability of funding	6	0.843
Entrepreneurial education	6	0.814
Accessibility and transferability of R&D	6	0.822
Availability of product and service suppliers	5	0.782
Access to infrastructure, basic utilities, and communication services	5	0.822
Access to markets	6	0.575
Entrepreneurial opportunities	5	0.765

Since the objective of the study was to test the different perceptions of entrepreneurship experts regarding economic conditions and public policies potentially affecting the incidence of opportunity entrepreneurship, we compared specific variables measured by the GEM study that were directly related to our own hypotheses.

To test hypothesis 1, we compared the perceptions of central and peripheral entrepreneurship experts with respect to the accessibility to critical entrepreneurial resources, specifically: availability of funding; entrepreneurship education; intensity and transfer of R&D; availability of product and service suppliers; infrastructure, basic utilities, and communication access. To test hypothesis 2, we contrasted the perceptions of the two sets of experts with respect to access to markets. For hypothesis 3, the comparison related to the extent of entrepreneurial opportunities.

Considering sample size in this study, validity tests for the scales used here could not be conducted. However, based on the worldwide GEM reports, these scales have been accepted and used. Levie and Autio (2008, p. 248) reported that validity checks with proxies from secondary sources suggested good external validity for the scales employed. As for reliability, between 2000 and 2006 some scale items were refined at each annual GEM planning meeting to enhance internal reliability of the multi-item scales, even though almost all scales had already demonstrated good reliability scores throughout the period: Cronbach's alpha of 0.7 or greater, as recommended by Nunnally (1978). For our research, and in order to test the reliability of the measures, alpha coefficients were computed for each of the seven groups of questions associated with the predefined categories. The outcomes are shown in Table 2, and the specific items for each scale are available on request from the authors. Most coefficients are greater than 0.70, providing evidence of acceptable reliability.

Results

To select the appropriate procedure for testing differences between the perceptions of peripheral and core entrepreneurship experts, the Kolmogorov–Smirnov and Shapiro–Wilk tests were applied, to determine whether or not the values obtained from

the participants' responses were normally distributed for both groups. Most of the seven variables under consideration were not. The nonparametric Mann–Whitney *U*-test was therefore chosen for comparison of the means between the peripheral and core groups. As the nonparametric counterpart of the independent-samples *t*-test for equality of means, it has been reported as considerably more efficient and robust when sample distributions are far from normal (Conover, 1998). The test results are shown in Table 3, confirming significant differences between the two groups in all but one of the seven variables. Additionally, the same procedure was applied to test if significant differences between regions within the same group were present. These tests did not provide evidence of significant differences between Santiago and Valparaiso (the central regions) nor between Southern and Northern regions (the peripheral regions), providing evidence that significant differences are indeed associated with the general distinction between central versus peripheral regions rather than with particular differences between each of the regions.

Hypothesis 1: Perceptions of Entrepreneurial Resources

The results related to access to critical entrepreneurial resources show that CEEs have more favorable perceptions than PEEs on four out of its five constituent dimensions, the exception being "availability of product and service suppliers." On the basis of the statistics in Table 3 and the further discussion of the results below, it can be asserted that hypothesis 1 is supported.

The comparatively greater optimism of CEEs about *availability of funding* centered on the perception that new and growing firms would have access to sufficient debt and equity funds, government subsidies, and funding from private individuals, venture capitalists, and initial public offerings. We suggest that there may be two different explanations for this observation. First, core areas offer more financial activity and a greater range of sources of resources than peripheral areas. For example, Santiago and Valparaíso are the only two cities in Chile with stock exchange facilities. Second, levels of information about those resources are higher in core areas, and entrepreneurial experts there know more about what is available.

CEEs also perceived *entrepreneurial education* more favorably than PEEs, in considering such issues as the level of formal instruction, preparation, support, and encouragement that primary, secondary, and university education provide for start-ups and growing new firms in Chile. We suggest that the main reason for their positive responses is the higher number of schools, universities, and leading business schools in the core areas. As in most countries, this concentration of educational provision has resulted in richer resources being available for the support of entrepreneurial innovation and activity.

CEEs had more favorable perceptions of the *accessibility and transferability of R&D*, expressed in their views about knowledge transfer, of science and technology, and other useful disciplines and skills, from universities and public research institutions to entrepreneurial enterprises, the existence of adequate government subsidies toward the costs of acquiring such knowledge, and the quality of the support available to engineers and scientists for the commercialization of their ideas by entrepreneurs.

Lastly, CEEs were more positive about the quality, cost, and accessibility of *infrastructure, utilities, and communication services*. Specific issues were the adequacy of support for new and growing firms provided by the available physical infrastructure (roads, utilities, communications, waste disposal), and the associated time and cost expended in obtaining them.

Table 3

Mann–Whitney *U*-Test—Results of the Experts' Sample

	Group	Valid cases	Mean	SD	Mean diff. CEE-PEE	Mann–Whitney *U*	Z
Entrepreneurial resources (hypothesis 1)							
Availability of funding	CEE	61	2.554	0.797	0.357	1,737.0	−2.729**
	PEE	78	2.196	0.980			
Entrepreneurial education	CEE	61	2.239	0.640	0.295	1,685.5	−2.951**
	PEE	78	1.943	0.800			
Accessibility and transferability of R&D	CEE	61	2.276	0.830	0.252	1,947.5	−1.835*
	PEE	78	2.024	0.794			
Availability of product and service suppliers	CEE	61	2.885	0.738	0.197	2,125.5	−1.078
	PEE	78	2.688	0.899			
Access to infrastructure, basic utilities, and communication services	CEE	61	4.260	0.671	0.849	1,140.0	−5.275***
	PEE	78	3.411	0.962			
Access to markets (hypothesis 2)	CEE	61	2.554	0.741	0.239	1,677.5	−2.978**
	PEE	78	2.315	0.843			
Entrepreneurial opportunities (hypothesis 3)	CEE	61	3.389	0.715	–0.201	1,870.5	−2.166**
	PEE	78	3.589	0.928			

* $p < .05$, ** $p < .01$, *** $p < .001$ (one-tailed)
CEE, core entrepreneurship expert; PEE, peripheral entrepreneurship expert.

Table 4

Entrepreneurial Opportunities Scale as Used in the Experts' Survey (Cronbach's alpha = 0.765)

Entrepreneurial opportunities (1: strongly disagree; 5: strongly agree)
There are plenty of good opportunities for the creation of new firms.
There are more good opportunities for the creation of new firms than there are people able to take advantage of them.
Good opportunities for new firms have considerably increased in the past 5 years.
Individuals can easily pursue entrepreneurial opportunities.
There are plenty of good opportunities to create truly high-growth firms.

Hypothesis 2: Perceptions of Access to Markets

The results related to this hypothesis show that CEEs held more favorable perceptions than PEEs regarding the accessibility of markets to new and growing firms. CEEs thought that such firms could easily enter new markets, that they could afford the costs of entry, that anti-trust legislation was effective and well enforced, and that new entrants did not risk being unfairly blocked by established firms. Hypothesis 2 is thus supported.

Hypothesis 3: Perceptions of Entrepreneurial Opportunities

In contrast to the support for Hypotheses 1 and 2, the Mann–Whitney results for experts' responses on entrepreneurial opportunities show that PPEs were more positive than the CEEs about the number and availability of opportunities for the creation of new firms, and the positive developments of recent years. The specific five items used to measure the perception of entrepreneurial opportunities are listed in Table 4, and they were found to show good reliability (Cronbach's alpha = 0.765). Following the result of the Mann–Whitney *U*-test (Table 3), hypothesis 3 is not supported.

Hypotheses 4, 5, 6: Results of the Adult Population Survey

In tandem with the survey of the perceptions of entrepreneurship experts, we further analyzed the responses of members of the wide adult population in Chile. The responses were collected during the GEM study in 2007. Table 5 shows the results of comparisons between peripheral and core regions in relation to 11 questions for which the number of respondents was between 1,556 for question number 1 and 2,200 for most of the other questions.

Statistical tests of the responses to Question 1 ("Do you see good opportunities for starting a business in the next 6 months?") show that although the percentages are not greatly different, at roughly 55:45, there is a significant difference in the positive-negative balance of answers between the subsamples (Pearson's chi-squared = 15.236, $p < .001$). Respondents in peripheral regions were more optimistic than those in core regions with regard to entrepreneurial opportunities. These findings regarding the APS lend external validation to the experts' responses, hence both samples did not support hypothesis 3. In order to better understand the possible reasons for the results of the APS, refined analyses were conducted to optimistic respondents. These analyses

Table 5

Comparison of the Responses of Adult Population Survey

Question	Total usable sample	Total "yes" (%)	Central "yes" (%)	Peripheral "yes" (%)	Sig. level
1. Do you see good opportunities for starting a business in the next 6 months? (hypothesis 3)	1,556	776[†] (49.9[‡])	503 (46.9)	273 (56.4)	***
2. Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years? (hypothesis 4)	2,186	644 (29.5)	466 (30.6)	178 (26.8)	*
3. Are you, alone or with others, currently trying to start a new business, including any type of self-employment or selling any goods or services? (hypothesis 4)	2,200	240 (10.9)	166 (10.8)	74 (11.1)	
4. Are you involved in nascent business (new firm start-up), defined as active, expect to be a full or part owner, and no salaries or wages paid for over 3 months? (hypothesis 5)	2,200	159 (7.2)	106 (6.9)	53 (7.9)	
5. Do you know someone personally who started a business in the past 2 years? (hypothesis 5)	1,706	807 (47.3)	537 (45.2)	270 (52.2)	**
6. Are you actively involved in start-up effort? (hypothesis 5)	2,200	223 (10.1)	157 (10.3)	66 (9.9)	
7. Are you actively involved in start-up effort and owner? (hypothesis 5)	2,200	219 (10.0)	155 (10.0)	64 (9.6)	
8. Are you involved in a nascent firm or young firm or both? (hypothesis 5)	2,199	284 (12.9)	196 (12.8)	88 (13.2)	
9. Are you involved in a nascent firm or young firm or both? (reporting opportunity as major motive) (hypothesis 5)	2,199	207 (9.4)	143 (9.3)	64 (9.6)	
10. Are you involved in a nascent firm or young firm or both? (reporting necessity as major motive) (hypothesis 5)	2,199	65 (3.0)	47 (3.1)	18 (2.7)	
11. Do you manage and own a business that is older than 42 months? (hypothesis 6)	2,200	207 (9.4)	133 (8.7)	74 (11.1)	*

* $p < .05$, ** $p < .01$, *** $p < .001$ (one-tailed)
[†] Valid cases for each answer/sample.
[‡] Percentage based on total valid cases for each sample.

explored possible differences in demographic issues between peripheral and core respondents. Results of these analyses provided evidence of significant differences in terms of age and no significant differences in terms of gender. As for age differences, peripheral optimistic respondents were slightly older (where old refers to respondents between 36 and 65 years old, and young refers to respondents between 18 and 35 years old) than optimistic respondents in the core region ($Old_{Peripheral} = 61.4\%$, $Old_{Core} = 54.3\%$; Pearson's chi-squared = 5.573, $p < .05$).

Responses to Questions 2 and 3 provided minimal support for hypothesis 4: that the rate of actual intentions and expectations to start businesses is lower in peripheral versus core regions. Among the responses to Questions 4 to 10 inclusive, relating to different aspects of nascent entrepreneurial activities, only one does not support hypothesis 5: that the rate of actual start-up efforts and nascent businesses is lower in peripheral versus core regions. Table 5 shows that the average of all answers to Question 5 is not only contrary to the results of the other six questions relevant to hypothesis 5 but moreover to the expected result. This unaligned finding can be explained by the degree of familiarity and local embeddedness found more commonly in smaller cities than in metropolitan centers, in Chile (Felzensztein, Gimmon, & Huemer, 2010), which leads to more respondents at the periphery than in core regions personally knowing entrepreneurs. Additionally, responses to Question 11 show a marginally significant higher rate of entrepreneurial activity among ventures established for longer than 42 months old at the periphery than in the core regions, which contradicts the expectation of a lower rate in peripheral regions formalized in hypothesis 6.

To cast further light on the results regarding entrepreneurial activity issues, total entrepreneurial activity and its "necessity" and "opportunity" subsets were analyzed. No significant differences were found between core and peripheral regions in any case. The proportions of respondents involved in total entrepreneurial activity were 12.8% and 13.2%, respectively (Pearson's chi-squared = 0.107, $p > .5$); for necessity entrepreneurial activity, the respective proportions were 3.1% and 2.8% (Pearson's chi-squared = 0.254, $p > .5$); for opportunity entrepreneurship the values were 9.3% and 10.0% (Pearson's chi-squared = 0.361, $p > .5$).

Further, taking into account only informants who declared themselves to be involved in entrepreneurial activities, differences between core and peripheral regions were not significant with respect to the proportion of respondents involved in necessity or opportunity entrepreneurial activities. In the case of core regions, the proportions were 24.7% for necessity entrepreneurial activities and 75.3% for opportunity entrepreneurial activities; for peripheral regions, they were 21.6% and 78.4%, respectively (Pearson's chi-squared = 0.504, $p > .4$).

Finally, since demographic variables have been identified as determinants of entrepreneurial behavior (Arenius & Minniti, 2005), variations in levels of actual entrepreneurial activity were measured in age group and gender subsamples. These comparisons again took into consideration only informants who had already declared themselves to be involved in early-stage entrepreneurial activities. Results provided mixed evidence of potential differences in entrepreneurial activities. With respect to gender, no significant differences were found for the three varieties of entrepreneurial activity. In the total category, the core versus peripheral proportions of males were 61.7% and 58.4% (Pearson's chi-squared = 0.431, $p > .5$); for the necessity category, they were 36.2% and 36.1% (chi-squared 0.000, $p > .9$); for the opportunity category, 69.9% versus 66.4% (0.390, $p > .5$). With respect to age, results provided evidence of a higher proportion of informants over 35 years of age in peripheral regions, in the case of both total entrepreneurial activity (core = 50.5%, peripheral = 63.0%; chi-squared = 5.834, $p > .05$) and opportunity

entrepreneurial activity (core = 46.9%, peripheral = 60.3%; chi-squared = 4.970, $p < .05$). There was no significant difference, however, in the case of necessity entrepreneurial activity (core = 63.8%, peripheral = 72.2%; chi-squared = 0.654, $p > .4$).

Discussion

A clear finding from our study is that entrepreneurship experts from the core regions hold more favorable perceptions than those from peripheral areas about all but one of the resources available to existing and aspiring entrepreneurs: funding; entrepreneurial education; R&D; and infrastructure, utilities, and communication (hypothesis 1). They are also more optimistic about entrepreneurs' prospects of access to markets (hypothesis 2). Our findings also suggest that peripheral entrepreneurship experts are more pessimistic about the entrepreneurial orientation of their educational system. Limited entrepreneurial education may discourage individuals from starting new ventures. The general support for hypothesis 1 confirms that peripheral regions are comparatively deprived, as locations in which entrepreneurial activity can flourish.

Although the majority of our results indicate better chances for centrally located entrepreneurs to develop their businesses, their peripheral counterparts perceive themselves to be surrounded by more business opportunities. This finding, obtained from the entrepreneurship experts' sample and confirmed by our APS analysis, contradicts hypothesis 3, which suggested that entrepreneurship experts located in central regions have more favorable perceptions of entrepreneurial opportunities than those experts located in peripheral regions. Although a refined analysis of the APS samples provided evidence for a tendency of peripheral optimistic respondents to be slightly older than optimistic respondents in the core region, this difference is marginal, and no evidence of significant differences in terms of gender were found; therefore, it is possible to affirm that demographic issues are not the causes of the reported difference in opportunity recognition between respondents in peripheral and central regions, and the differences in opportunity perception may be explained by existing opportunities having to plug the gap left by the missing services and infrastructure in peripheral regions.

Consequently, entrepreneurs in peripheral regions may in fact perceive themselves to be in the right place to prosper by exploiting the relatively abundant local business opportunities, such as those related to the natural resource-based industries or to the underdeveloped but growing tourist infrastructure. In line with the higher rate of perceived opportunities in peripheral areas, a higher rate of actual entrepreneurial activity could be expected in those regions. However, the tests of actual entrepreneurial activity of the sampled total adult population generally did not show significant differences between peripheral and core regions. The only significant difference was related to the entrepreneurs' age in regard to the total opportunity entrepreneurial activity. We found more entrepreneurs over 35 years old in the peripheral regions than in the core region.

The general phenomenon of the discrepancy between attitudes and actual behavior can be explained by the work of Stephan (1985) and Dockery and Bedeian (1989), who presented the cost/reward model of behavior. According to this model, the high cost associated with actual behavior is different from, and more dominant than, the low cost associated with expressing attitudes. In the context of the founding of new ventures, we suggest that the expected effects of micro-level push and pull factors on potential entrepreneurs dictates the actual behavior rather than the effects of macro-level perceptions. In our study in Chile, we posit that the two opposed factors in peripheral regions—fewer resources and more opportunities—offset each other, resulting in a yield rate of

entrepreneurial activity similar to that of core regions. Hypothesis 6 is not supported, since the data collected by Question 11 shows a higher rate of entrepreneurial activity among ventures established longer than 42 months in peripheral regions. This finding may be explained by the more competitive and turbulent environment in core areas compared with peripheral regions (Acs & Szerb, 2010; Frank, 1969; Tamasy, 2006), which may shorten the life expectancy of new ventures. In summary, the espoused attitudes are considered to be "true" and represent the tendency to act in a certain way (Dockery & Bedeian). Generally attitudes as well as actual behavior should be considered in assessing the implications of the findings.

To conclude, entrepreneurial activity does not underperform in the peripheral regions and the experts may have exaggerated their perceptions beyond the actual entrepreneurial framework conditions. However, taking account of the experts' perceptions, we suggest providing further resources and governmental assistance to the peripheral regions. Beyond implications to entrepreneurs, investors and policy makers, this study contributes to the body of knowledge in exploring the significant differences between core and peripheral regions with respect to perceptions of entrepreneurial framework conditions vis-à-vis the absence of differences in regard to actual entrepreneurial activities.

Conclusions, Implications, and Further Research

Our conclusions revive the debate about the need for specific regional government policies. The development of an entrepreneurial culture can help emerging economies to achieve important economic growth and encourage entrepreneurs located far from the core regions and metropolitan areas to start innovative new businesses. In pursuing that debate, noting the support this study lends to hypothesis 1 and hypothesis 2, it is worth noting that the current policies of national and local government in Chile directed at fostering and facilitating entrepreneurial activity do not seem to be in favor of regional entrepreneurship, and does not provide enough support to entrepreneurs located in peripheral areas.

Government programs are expected to offset the reportedly inferior resources at peripheral regions. At a national level, policy makers should consider that the 2008 Doing Business Report (World Bank, 2008) demoted Chile from 24th rank to 40th in terms of its general environment for business start-ups. While other Latin American countries such as Peru and Colombia have improved their rankings, the current situation for Chile and its regions has, relatively, deteriorated in Latin America. Hence lessons should be learnt from our results for new regional entrepreneurial policies in emerging economies, such as those in Latin America.

The key lesson from our study of the underexplored field of entrepreneurship in peripheral areas in Latin America is that policy makers should be aware of the pessimistic perceptions about the availability of entrepreneurial resources at the periphery. In spite of the higher rate of perceived opportunities in peripheral regions, actual entrepreneurial activity in the sampled total adult population was not found to be higher in these regions. Government policies should facilitate the deprived regions at the periphery in order to realize the potential opportunities. As an example, government programs should promote high-quality university education and R&D with a commercial impact which is a necessity in underdeveloped markets for the enhancement of innovative entrepreneurial activity. Regional innovation systems, learning regions, and clusters should be policy frameworks for implementing long-term innovation-based regional development strategies (Delgado et al., 2010). The goal of government programs for peripheral regions should be not only

to improve such entrepreneurial resources as funding, technology, education, and basic utilities, but also to foster societal acceptance of entrepreneurship and encourage individuals to start new ventures. This call for further government support in peripheral regions is made even more apposite by our surprising but encouraging finding that peripheral regions are perceived to provide greater entrepreneurial opportunities than core regions.

Further research studies are expected to show whether or not any affirmative action has been taken in this matter and future studies in different Latin American countries and other emerging economies are called for, to confirm or contradict our findings in the specific case of Chile. Future studies may find less inequality between regions due to affirmative government policies or globalization (Zhou et al., 2011). Those might extend the peripheral issue to the global context, in which entrepreneurs in developing counties may need organized support if they are to exploit the available opportunities.

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