# Here comes the entrepreneur?

A discrete choice experiment on the location decision of early-stage entrepreneurs

***Master thesis Innovation Sciences***
December 2015

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# Abstract

Policies around the world aim to strengthen their entrepreneurial ecosystem to attract entrepreneurs. However, current literature contains contradictory findings regarding reasons for entrepreneurs to either leave or stay in a region. To entangle this apparent contradiction, this research studies the location decision of early-stage entrepreneurs by studying their preferences for both economic and individual regional attributes. Insights in preferences are obtained by using a Discrete Choice Experiment (DCE) among 935 respondents in ten countries in North America and Western Europe, which results in a total of 14,960 observations. This method allows for showing a causal relation between regional attributes and the location decision of early-stage entrepreneurs. Moreover, this approach enables to observe differences and similarities in choice patterns of the entrepreneurs (i.e. unobserved heterogeneity). Entrepreneurs that show similar choice patterns are allocated to the same class. Covariates are used to characterize the different classes. The results show that a three class model best describes the data. Classes can roughly be differentiated on the extent to which the entrepreneurs are willing to leave their home region to obtain access to economic attributes as a benefit for their start-up. Entrepreneurs in the first class are mostly influenced by the distance to loved ones, and thus likely to stay in their home region. The second class of entrepreneurs shows a relatively equal influence of both economic and individual attributes. Most influential are access to market, availability of capital, quality of living and distance to loved ones. Entrepreneurs in the third class are mainly influenced by economic attributes, especially by access to market, availability of capital and skills of workforce. By researching heterogeneity, this study connects the embedded entrepreneur of Dahl & Sorenson (2009) and Stam (2007) and Florida's (2004) creative class. The insights in heterogeneity solve the apparent contradiction between these different research findings. Moreover, the concept of Florida's creative class is argued to be broadened by including economic attributes derived from the entrepreneurial ecosystems literature. Lastly, the insights into the individual perspective and individual needs of the entrepreneur add valuable information to entrepreneurial ecosystems literature (Spigel, 2015).



# Acknowledgements

I would like to take this opportunity to thank my supervisor, Frank van Rijnsoever, and his companion, Marijn van Weele, for always being critical, flexible and open for ideas. Also, I am grateful for the financial support of Climate-KIC, which made it possible to carry out this research. In addition, my gratitude goes to Ernesto Amarós and the staff of the Entrepreneurship and Innovation Center of the Universidad del Desarrollo in Santiago, Chile. They provided the entrance into the local entrepreneurial ecosystem and gave valuable feedback early on in the process. Moreover, I would like to thank Kevin Broecks for sharing his knowledge on DCEs and Latent Gold, and my fellow students, Matthee le Cointre, Oskar Meijerink and in particular Menno Groen for his complementary insights and tranquillity. Lastly, a special thanks to Sarah Lally, for making distance unimportant.

# Content

# 1. Introduction

Entrepreneurship is recognized as an important determinant of regional economic development (Ács & Armington, 2004; Lee et al., 2004; Spigel, 2015; Stam, 2009), linked particularly to fast-growth, rapid job creation, GDP growth, and long-term productivity increases (Isenberg, 2010). Accordingly, many countries and regions have introduced policies to make their region suitable for entrepreneurship (Bosma & Sternberg, 2014; Fritsch & Storey, 2014; Minniti, 2008; Williams & Baláž, 2008) and compete to attract skilled workers, such as entrepreneurs (Malecki, 2007). Despite these efforts, several studies show that entrepreneurs are more likely to start a firm in their home region, and thus less likely to migrate (Dahl & Sorenson, 2009; Michelacci & Silva, 2007; Parwada, 2008; Stam, 2009). When making their location decision, entrepreneurs place more emphasis on their strong social ties—i.e. being close to family and friends—than on regional economic attributes that can influence the performance of their start-up (Dahl & Sorenson, 2009; Michelacci & Silva, 2007; Stam, 2007).

Contradictorily, Florida (2004) argues that creative individuals such as entrepreneurs are increasingly mobile and attracted to creative and tolerant regions. Several practical examples also show that some entrepreneurs decide to migrate with the aim to find economic attributes that provide benefits to their start-up. Silicon Valley is arguably the most recognized example of a successful entrepreneurial ecosystem that attracts entrepreneurs (Neck et al., 2004). Also emerging entrepreneurial ecosystems attract entrepreneurs, such as Santiago de Chile. In spite of beliefs that Chile suffers from socio-geographical isolation (Leatherbee & Eesley, 2014), it successfully attracts foreign early-stage entrepreneurs (Geromel, 2012; Smale, 2015; Start-up Chile, 2014). To addresses this apparent contradiction, this study aims to fill three research gaps.

First, scholars have shed light on the location decision of established companies (see Basile, Castellani, & Zanfei, 2008; Berg, 2014), but not specifically on entrepreneurs active in the early stage of development (Honig et al., 2005). Established companies are restrained by path dependency and organizational hierarchy. Early-stage entrepreneurs do not have these restraints and are therefore more flexible to relocate than large firms (Davidsson & Honig, 2003). In addition, resource requirements of early-stage entrepreneurs are likely to be quite different from more mature organizations (Honig et al., 2005). Other studies have shed light on the location decision of individuals (see Florida, 2004; Mellander et al., 2011). Compared to non-entrepreneurial individuals, entrepreneurs are more risk-taking and in search for economic opportunities (Parker, 2009). The location-decision of entrepreneurs is therefore arguably more complex, as it is driven both by individual and economic needs (Stam, 2007).

Second, relatively little is known about the location decision from the perspective of the entrepreneur (Knoben, 2011; World Economic Forum [WEF], 2013). Previous studies analysed location decisions on a regional level of analysis (see Dahl & Sorenson, 2009; Florida et al., 2008; Michelacci & Silva, 2007). Aggregated regional data however, is not able to detect whether a statistical relation is causal (Sternberg, 2012). Consequently, the cause-effect relationship of the presence of these regional attributes and the presence of certain types of entrepreneurs remains ambiguous.

Finally, previous behavioural studies focused on the typical entrepreneur, ignoring that entrepreneurs have various needs and characteristics that cannot always be observed (see Michelacci & Silva, 2007; Dahl & Sorenson, 2009). Ignoring this heterogeneity can lead to apparent contradictory findings of different studies, and discrepancy between research and reality, such as the one proposed. This study aims to address the apparent contradiction and sets out with the following research question:

> *What is the influence of regional attributes on the location decision of latent classes of early-stage entrepreneurs?*

To investigate this influence, this study employs a Discrete Choice Experiment (DCE) among early-stage technology-based entrepreneurs in ten different countries in Western Europe and North America. This study focuses specifically on technology-based start-ups, as they operate in dynamic industries and therefore arguably have higher resource needs than non-technology-based start-ups (Liao & Welsch, 2008). Moreover, technology-based entrepreneurs are especially important for economic growth and innovation (Aerts et al., 2007).

Within the early-stage of entrepreneurs, this research makes a distinction between nascent entrepreneurs—who are in the earliest stage and emergence of the start-up—and non-nascent entrepreneurs—who have more experience during their start-up phase[1]. Nascent entrepreneurs are particularly susceptible to fast changes in their environment and flexible to respond to these changes (Honig et al., 2005). This may make them more flexible to migrate. Furthermore, by using a DCE, the perspective of the entrepreneur is central, which provides insights into the process of decision making even when decisions are based on unconscious utility (Louviere et al., 2010). Moreover, the experimental design of a DCE can show that a change in attribute is causally related to a location decision (Van Rijnsoever & Kempkes, 2014). Finally, a DCE allows for an additional source of unobserved heterogeneity—when compared to cross-sectional surveys—on the basis of similar choice patterns (Vermunt & Magidson, 2005). Latent classes show these differences based on subconscious preferences of different types of entrepreneurs (Louviere et al., 2010). Theoretically, the insights obtained connect the apparent contradictory findings of Dahl & Sorenson (2009) and Florida (2004). Moreover, by showing the importance of individual attributes on the location decision of early-stage entrepreneurs, this study adds valuable information to the emergence of communities of technology entrepreneurs. The perspective of the individual entrepreneur that is central in the DCE thus contributes to the entrepreneurial ecosystems literature.

The obtained knowledge on entrepreneurial behaviour is valuable for policymakers that can use this knowledge to strengthen their region's entrepreneurial ecosystem (WEF, 2013). This is vital as many governments attach high hopes to the effect of entrepreneurship on economic growth (Wennekers et al., 2005). Insights into heterogeneity of entrepreneurs allows for tailoring policies according to present regional strengths and the type of entrepreneurs desired, which is in line with the increasingly popular focus on location specific opportunities (Bosma & Sternberg, 2014). The distinction between economic and individual needs of the entrepreneur can provide new insights into how to do so.

This paper proceeds as follows. Section 2 describes current theory on entrepreneurial ecosystems, individual location behaviour, and the regional attributes derived from this. The description of the method follows in Section 3. Section 4 describes the results of the DCE, illustrated with interview findings. Lastly, section 5 contains the conclusion and discussion.

[1] Methodological distinction between nascent and non-nascent entrepreneurs is provided in chapter 3.3 Covariates.

# 2. Theory

Since the professional and personal lives of the early-stage entrepreneur are strongly intertwined (Stam, 2007), the location decision is driven by both economic needs and individual needs. Although both the economic and individual needs are embodied in the same person, it is important to make a distinction as there is an inherent difference in the mechanisms behind them. The outcome of the location decision can either be to stay in the current location or to move to another location. This section describes the location decision from the perspective of both the economic and individual needs, and the regional attributes associated with them.

## 2.1 Economic needs

Technology-based early-stage entrepreneurs inherently have limited access to resources needed for starting their venture, because of their young age, small size, lack of organizational legitimacy and often uncertainty regarding the new technology (Grichnik et al., 2014; Leung, 2003). This leads to limitations in the start-up's competitive advantage and growth (Bruneel et al., 2012). Obtaining adequate resources is especially important at the early stage of venture creation, as they increase chances of survival in the stage where many ventures fail (Leung, 2003; Shane, 2000). Location-specific attributes represent the special characteristics accruing to firms operating in that location (Krishna Erramilli et al., 2015) and can therefore attract entrepreneurs to particular locations (Knoben, 2011; Leatherbee & Eesley, 2014; Neck et al., 2004; Qian et al., 2013; Spilling, 1996). When a region offers less favourable economic environments than other possible places, entrepreneurs can make a strategic decision to move to another location (Dahl & Sorenson, 2009; Knoben, 2011).

The entrepreneurial ecosystems provides resources the entrepreneur can access when present in that region (Spigel, 2015). Entrepreneurial ecosystems are defined as a group of interconnected actors and regional factors in a local community that support entrepreneurial activity (Spigel, 2015). Different research areas give similar definitions to describe the context entrepreneurs operate in, including work on clusters (Porter, 2000), innovations systems (Hekkert et al., 2007; Acs, Autio, & Szerb, 2014; Qian et al., 2013), economic geography (Feldman, 2001; Malecki, 2007), and networks (Sorenson & Stuart, 2001; Stuart & Sorenson, 2003). These approaches share a belief that attributes exist outside the boundaries of a firm but within a region that contribute to the competitiveness of new ventures (Spigel, 2015). However, in these approaches, the role of entrepreneurs remains a black box (Stam, 2015). The entrepreneurial ecosystem approach differentiates itself from other approaches by focusing specifically on the development and growth of start-ups (Spigel, 2015), making it especially applicable to this research. To analyse the influence of regional attributes on the location decision of early-stage entrepreneurs, the attributes of entrepreneurial ecosystems are distilled from recent research in this area (Neck et al., 2004; WEF, 2013; Spigel, 2015; Stam, 2015).

## 2.2 Economic attributes

### 2.2.1 Access to market

Access to market is defined as the accessibility of target customers and therefore the potential to meet customer needs. This helps to launch the start-up’s products or services in the market (Dahl & Sorenson, 2009; Feldman, 2014). Meeting customer needs enables start-ups to grow significantly in the first years of operation (Schaltegger & Wagner, 2011). Entrepreneurs can achieve this when present in an entrepreneurial ecosystem with a strong local market as regional proximity reduces the cost and increases the frequency of personal contacts (Almeida & Kogut, 1997). Thus it allows for interaction with local potential customers to test out new offerings (Spigel, 2015). This enables early sales and the possibility to build up their capabilities for future expansion (Feldman, 2001). Next to the presence of a strong local market, unlimited access to global markets can allow for successful start-up creation (WEF, 2013; Spigel, 2015). Access to global markets can provide the same benefits as access to local markets, when there are few geographic, regulatory or cultural barriers in the entrepreneurial ecosystem for expanding internationally.

### 2.2.2 Availability of capital

Availability of capital in the entrepreneurial ecosystem is defined as the ease of getting access to funding for the development of the start-up, regularly coming from family and friends, angel investors or venture capitalists (Spilling, 1996; Spigel, 2015) and increasingly obtained through crowdfunding (Mollick, 2014). Developing a start-up often involves the need for external funding in the early stage of a start-up (Shane, 2000). "Availability of equity finance is one of the main obstacles that entrepreneurs face when trying to initiate and consolidate their business" (Amorós et al., 2008, p. 180). Because of high information asymmetries related to a high failure rate of start-ups, obtaining the required funding is often difficult (Amorós et al., 2008; Parker, 2009). Start-ups therefore tend to be based in regions with more investment management firms, banking establishments, and large institutional money managers (Parwada, 2008). Previous research shows that locations are likely to have more new firms if start-ups have the ability to raise funds (Dahl & Sorenson, 2009; Fritsch & Storey, 2014). The role of different forms of financial capital for entrepreneurs varies during each stages of the start-up development (Amorós et al., 2008). This means that the stage of the start-up is likely to have an impact on what drives the location decision. This research therefore distinguishes between initial funding for the earliest stage of starting a business and additional rounds of fundraising required for expanding the business.

### 2.2.3 Skills of workforce

The skills of workforce are defined as the accessibility to well-educated, efficient and productive potential employees for the start-up, i.e. talent. The ability to recruit talented employees contributes to the growth of the start-up (Neck et al., 2004; Dahl & Sorenson, 2009; Stam, 2015). Universities present in the entrepreneurial ecosystem are an excellent source to find this talent (Feldman, 2014; Stam, 2015). The availability of talent in a region benefits firms as it lowers the search costs and improves the match between labour supply and labour demand (Wenting et al., 2011). A reason to choose a certain location can be to more easily or economically recruit talent in labour markets (Michelacci & Silva, 2007). Because entrepreneurs tend to be equipped with excellent technological expertise but often lack business and managerial experience (Keuschnigg & Nielsen, 2003), this research distinguishes between business and technical skills.

### 2.2.4 Entrepreneurial community

An entrepreneurial community is present when entrepreneurs are well connected and willing to help each other by making introductions or by sharing knowledge (Van Weele, 2012). Cooperation makes it possible to exchange especially tacit knowledge (Stam, 2015, p. 1760). For a start-up to become successful, this knowledge is an important attribute both for technical and business development (Grant, 1996). A location with an active entrepreneurial community where many other entrepreneurs are present is likely to benefit start-up growth because of the increased potential to benefit from knowledge spillovers (Stenholm et al., 2013). These local knowledge spillovers yield advantages for firms in the region as mutual learning without financial compensation increases efficiency. "Local communities of creative individuals provide the basis for knowledge exchange in social networks on a *quid pro quo* basis" (Wenting et al., 2011, p. 4), i.e. entrepreneurs need to be willing to help each other. As tacit knowledge largely stays within one geographic location, the costs of transmitting it rises with distance (Audretsch & Feldman, 1991; Caniëls, 2000). It is beneficial for entrepreneurs to move to a region where an entrepreneurial community is present to benefit from these knowledge spillovers (Feldman, 2014).

### 2.2.5 Availability of support services

Availability of support services in the entrepreneurial ecosystem consists of accessible, effective and affordable services entrepreneurs can use for start-up growth. Often this is facilitated through incubators or accelerators. Incubators and accelerators are organizations that provides access to resources and therefore support the development of a start-up (Chau & Lau, 2005). Entrepreneurs can be stationed at such an organization when starting a new venture (Neck et al., 2004). They facilitate the accessibility of resources, for instance by organizing network events and workshops (Dahl & Sorenson, 2009), or by offering the start-up a mentor. Having a mentor increases an entrepreneur's performance and the presence of mentors in a region

increases overall survival rates (Spigel, 2015). Other professional services provided by the incubator or accelerator are for instance accountants, attorneys and specialized consultants (WEF, 2013).

### 2.2.6 Ease of doing business

The ease of doing business is facilitated by the institutional context of a location in which the entrepreneur operates (Ács et al., 2014). Institutions, formal and informal, refer to deep aspects of social structure, which act as authoritative guidelines that incite or constrain entrepreneurial behaviour (Stenholm et al., 2013; Stephan et al., 2014). They have an impact on both starting and operating a business.

In particular formal institutions can influence the ease of starting and doing business, because constraints and incentives arise from government regulation (Stephan, Uhlaner, & Stride, 2014). To increase the rate of entrepreneurial activity in a country, an environment with regulative arrangements that support this is important (Stenholm et al., 2013). Governments can provide institutional support for start-ups—e.g. through simplifying the process of registering a company, tax benefits, subsidies and removing legal constraints—that help them survive and thrive (Sternberg, 2012; WEF, 2013). The basic idea is that a system favourable to smaller and entrepreneurial ventures can encourage people to operate their business in that region (Minniti, 2008). An example of a governmental constraint is bureaucracy, which influences the time it takes to arrange regulatory administration and legal submissions (Stenholm et al., 2013). This restrains entrepreneurs' enthusiasm (Chandra & Mendrano Silva, 2012) and may discourage them to register their business (Stenholm et al., 2013). Similarly, pervasive corruption and untrustworthy enforcement of laws can hinder entrepreneurial behaviour (Stenholm et al., 2013). Thus, in locations with unstable regulations and laws, the opportunity costs for entrepreneurship are likely to increase considerably (Stenholm et al., 2013), making those locations less attractive for entrepreneurs.

Informal institutions—associated with a shared understanding, values and norms, obligations, and expectations about appropriate actions (Stephan et al., 2014)—can also hinder or stimulate the ease of doing business, mainly through culture. Mai and Gan (2007) suggest the cultural environment influences perceived entrepreneurial opportunity more than the political environment. The present culture of a social group influences entrepreneurial intentions positively if the attitude is to accept entrepreneurship (Stenholm et al., 2013), and therefore likely to be more attractive for entrepreneurs. Lastly, ease of doing business can be facilitated through low language barriers.

## 2.3 Individual needs

The individual needs are based on research that studied individual location behaviour, such as Florida (2004) and Dahl & Sorenson (2009). These studies argue that a region is attractive if it satisfies individual needs, such as the need for happiness (Florida et al., 2008) and a feeling of affinity with the place and the people who live there (Dahl & Sorenson, 2009; Stam, 2009).

## 2.4 Individual attributes

### 2.4.1 Distance to loved ones

Distance to loved ones is defined as the distance between the location of the start-up and the entrepreneur's loved ones, such as close family and friends. Being close to family and friends provides social benefits (Dahl & Sorenson, 2012). It is often seen as something that has to be abandoned when moving to another place (Florida et al., 2008). This can therefore be an important driver against migration. On the other hand, falling in love with someone that originates from another location can be a reason to migrate.

### 2.4.2 Costs and quality of living

The costs and quality of living refer to the satisfaction of social interests and lifestyle needs of the entrepreneur both in quality and costs of living (Florida, 2004). Quality of living includes the region's level of safety, sense of comfort—including tolerance to immigrants and minorities, and the presence of bars, restaurants, cultural activities and other facilities. Florida (2004) finds that locations with many creative

people—such as artists, writers and photographers—are more attractive for other creative individuals (Boschma & Fritsch, 2009). Moreover, a tolerant social atmosphere, ethnic diversity and cultural activities, typically present in large cities, are said to attract creative individuals—e.g. entrepreneurs (Wenting et al., 2010). Costs of living refers to the monetary value necessary to maintain a standard of living, such as expenditures on housing and leisure activities (Konüs, 1939), transportation costs, (Suedekum, 2006) and other daily expenses.

## 2.5 Switching costs

When entrepreneurs make a location decision, switching costs—observed for instance when employees switch to entrepreneurship (Parker, 2009)—are likely to occur. When related to economic needs, switching costs are likely to be pecuniary in the form of sunk costs—i.e. investments that are not fully recoverable (Stam, 2007). These sunk costs arise when the start-up invests time and money in employees, office space and social networks that make it embedded in its current location. Start-ups in a later stage of development are more embedded in their social network, making the start-up more path dependent (Gulati, 1998). Because of the changing nature of the entrepreneurial firm, the amount of sunk costs differs per stage of development, and thus the start-up's flexibility. Therefore, along the development of the start-up, sunk costs increasingly determine its location behaviour (Stam, 2007). When related to satisfying individual needs, switching costs are often non-pecuniary. They involve, for example, changing an accustomed lifestyle, a feeling of rootlessness or stigma for failure (Parker, 2009). Entrepreneurs are, in this sense, bound to their current location, which can influence the willingness to migrate.

# 3. Method

## 3.1 Discrete Choice Experiment

Originally, a Discrete Choice Experiment (DCE) was designed to obtain insights in consumer preferences (Van Rijnsoever & Kempkes, 2014). Utilization of methods such as DCE has however increased in other fields of complex decisions, such as environmental and resource economics (Louviere et al., 2010), organizational behaviour, such as strategies from managers (Oppewal et al., 2000) and health economics, such as clinical decision making (Torbica & Fattore, 2010). This research uses a DCE to measure the preference of entrepreneurs for regional attributes.

DCE is a method based on the behavioural theory of choice that combines the theory of value with the random utility theory (RUT) (Hanley et al., 1998). The basic axiom of RUT is:

$U_{ij} = V_{ij} + \varepsilon_{ij}$

in which each individual *i* attaches a certain amount of utility $U_{ij}$ to each of the *j* alternatives, in this case the location. The utility consists of an observed, explainable component $V_{ij}$, comprised of the attributes the individual *i* associates with alternative *j*, and an unobserved random component $\varepsilon_{ij}$ associated with individual *i* and alternative *j*, such as latent classes. As a result, the researcher can predict the probability that individual *i* will choose alternative *j* (Louviere et al., 2010). The unit of analysis is the individual entrepreneur, who's preferences are driven by economic and individual needs.

### 3.1.1 Experimental design

In a DCE, respondents receive a series of choice tasks. All choice tasks consist of a constant set of attributes with varying levels that are associated with these attributes. The attribute levels vary systematically in such a way that the overall DCE contains an experimental design with minimal correlations (Van Rijnsoever & Kempkes, 2014). To get meaningful results about the attributes, a DCE forces respondents to choose between the options (Torbica & Fattore, 2010). By doing so, decision makers are obliged to trade-off the attribute levels of the options, which provides information on the relationships between the varying attribute levels and the choice (Henscher et al., 2005). The choice pairs allow for efficient statistical estimation of the relative influence of each individual attribute on the choice (Hanley et al., 1998).

Determining the set of attributes in a choice task is crucial, as including inaccurate attributes in the experiment would mean missing relevant information in the data (Henscher et al., 2005). For this reason, this study first identified a comprehensive list of factors based on theory that may affect the entrepreneur's location decision. This list was evaluated by a representation of the population through semi-structured interviews conducted in Santiago de Chile, as this is an excellent example of a location that has recently been attracting many entrepreneurs[2]. The main goal was to reduce the long list of potential influential factors to a small number of non-overlapping and comprehensible attributes and levels (van Rijnsoever & Farla, 2014). In addition, qualitative data is well suited to grasp the context of a phenomenon (Bryman, 2008). Insights obtained from the interviews were therefore used to place the results of the DCE into its context.

### 3.1.2 Choice task

Each questionnaire consisted of eight binary choice tasks, each with eight varying regional attributes. An example choice task is shown in Figure 1. Preceding the choice tasks, respondents were asked to select which region(s), out of a given set of regions around the world, they would consider if they were to locate their business. This was done to make the respondents conscious of what they base a location decision on and therefore to prepare them for the choice tasks. After that, they received a description table that explained the

[2] See Appendix A for an extensive description of qualitative method.

attributes and levels associated with them, in order to inform them on the response options[3]. In the choice tasks, the name of the region was kept anonymous, because this is likely to evoke emotions and therefore influence the location decision (Loewenstein et al., 2001). Also practical reasons lead to this decision. Because some attributes are specific to the start-up or entrepreneur, such as access to markets and the distance to loved ones, it is not possible to define the levels in line with the name of a location. The options were therefore headed 'Option #1' and 'Option #2'.

Imagine that you were to relocate your business. Please choose between two hypothetical regions to locate it. Each region has its own characteristics. Characteristics that are not mentioned, do not vary across regions.

*Which hypothetical region would you most likely choose to establish your business?*

| Attribute | Option #1 | Option #2 |
|---|---|---|
| Access to markets | No easy access to any market | Regional markets only |
| Availability of capital | A lot of growth capital | A lot of early stage & growth capital |
| Skills of workforce | High business skills only | High technical & business skills |
| Entrepreneurial community | Strong | Strong |
| Availability of support services | High | Low |
| Ease of doing business | Difficult | Difficult |
| Distance to loved ones | 6 - 10 hours | < 1 hour |
| Costs and quality of living | High costs & high quality of living | Low costs & high quality of living |
| **Which region would you most likely choose to establish your business?** Please select one of the two regions | ☐ | ☐ |

**Figure 1:** Example choice task.

### 3.1.3 Attributes

Table 1 shows the explanation of attributes that are identified in line with the theory and levels associated with them: 1) access to market; 2) availability of capital; 3) skills of workforce; 4) entrepreneurial community; 5) availability of support services; 6) ease of doing business; 7) distance to loved ones; and 8) costs and quality of living. For the sake of simplicity of the choice tasks (Henscher et al., 2005), most attributes clustered similar regional attributes into one, e.g. global markets and regional markets.

[3] Respondents could go back to this table at any time during the choice tasks.

**Table 1**

*Description and levels of the attributes*

| | Attribute | Description | Levels |
|---|---|---|---|
| Economic | Access to markets | The ability to access your target customers.<br>• Easy access to regional markets means that there are many of your (potential) customers in the region.<br>• Easy access to global markets means that there are few geographic, regulatory or cultural barriers for expanding internationally. | 1. No easy access to any markets<br>2. Regional markets only<br>3. Global markets only<br>4. Regional and global markets |
| | Availability of capital | When there is a lot of capital, there are many investors, and raising capital is relatively easy and fast.<br>• Early stage capital is the initial capital for starting the business.<br>• Growth capital refers to additional rounds of funding required to expand the business. | 1. Little capital available<br>2. A lot of early stage capital only<br>3. A lot of growth capital only<br>4. A lot of early stage and growth capital |
| | Skills of workforce | The skills of the potential employees for your start-up. Highly skilled employees are well-educated, efficient and productive.<br>• Technical skills include research, programming and product development skills.<br>• Business skills include management, marketing and business development skills. | 1. Low-skilled workforce<br>2. High business skills only<br>3. High technical skills only<br>4. High technical and business skills |
| | Entrepreneurial community | The presence of a local community of entrepreneurs. In strong communities, entrepreneurs are well connected and willing to help each other by making introductions or by sharing knowledge. | 1. Weak<br>2. Strong |
| | Availability of support services | Support services consist of start-up incubators and professional service providers (like accountants, attorneys and specialized consultants). When the availability of such services is high, they are easily accessible, effective and affordable. | 1. Low<br>2. High |
| | Ease of doing business | The ease of opening and operating a local business. When it is easy to do business, there are low levels of bureaucracy and corruption, few language and cultural barriers, and many business-friendly policies. | 1. Difficult<br>2. Easy |
| Individual | Distance to loved ones | The distance from your start-up's location to your loved ones, such as close family and friends. This is measured as the total amount of travel time. | 1. < 1 hour<br>2. 1 - 3 hour<br>3. 3 - 6 hours<br>4. 6 - 10 hours<br>5. 10 - 16 hours<br>6. > 16 hours |
| | Costs and quality of living | • The costs of living include monthly costs of housing, transportation, leisure and other daily expenses.<br>• Quality of living refers to the region's level of safety, sense of comfort and tolerance to immigrants and minorities. It also includes the presence of bars, restaurants, cultural activities and other facilities. | 1. High costs & low quality of living<br>2. High costs & high quality of living<br>3. Low costs & low quality of living<br>4. Low costs & high quality of living |

## 3.2 Sample and data collection

Data is obtained from 935 early-stage technology-based entrepreneurs. This technology-based early-stage entrepreneur was selected based on the following criteria: 1) they were alone or with others currently trying to start a new business; 2) they would consider the new business to be a technology-based start-up; 3) they performed at least one activity in the development of their business; 4) they had paid salaries for less than two years; 5) they expected to personally own all or part of the business; and 6) the business is not a subsidiary of another organization[4]. Entrepreneurs were sampled in ten countries in North-America and Western-Europe: USA, Canada, Ireland, UK, the Netherlands, Belgium, France, Germany, Switzerland and Austria. The selection of countries was based on a similar level of economic development, so that inhabitants have equal economic opportunities to move. Also, technology-based entrepreneurs are mostly present in these areas (Global Entrepreneurship Monitor [GEM], 2015). The number of respondents was aimed to correspond to the relative amount of entrepreneurs in that country. To make the sample more representative for the population, and thus augment the external validity, I added a weighing factor for the cases per country. These were derived from the Total Entrepreneurial Activity (TEA) of the GEM data[5]. The questionnaire was conducted in October 2015. Data was collected by the European marketing agency "Research Now" via an online panel. Respondents received a small monetary reward in order to encourage their cooperation.

## 3.3 Covariates

After the series of choice tasks, the questionnaire contained questions that were used to analyse the switching cost effects[4]. Switching costs are likely to be different for entrepreneurs and start-ups with different characteristics. Covariates that may cause differences in economic and individual needs are therefore taken into account[6].

### 3.3.1 Economic needs

Factors that potentially influence the location decision arise from differences in economic needs, which can evolve from the start-up stage, because the sunk costs differ per stage of development (Stam, 2007). The stage of the start-up was defined by the number of activities performed[7] and the months of salaries paid. The months of salaries paid allowed to identify whether the start-up was in the nascent or non-nascent stage. The start-up was in the nascent stage if it did not pay salaries or wages for more than three months (Sternberg & Litzenberger, 2004; Wagner, 2000). Start-ups who paid salaries for more than three months and less than two years, were in the non-nascent early-stage.

Another factor that potentially influences the location decision arises from different perceptions of economic needs, such as industry. Some industries are, for example, more dependent on local regional demand than others (Chandra & Silva, 2012) or are more bound to the region because of increasing returns on high investments (Arthur, 1994). The industries were divided into low-tech, medium-tech, and high-tech industries[8]. In addition, the experience of the entrepreneur may influence the type of expertise that the start-up additionally needs. The experience of the entrepreneur has a crucial influence especially during the start-up phase of a firm (Stam, 2007). Two types of experience are measured, in the number of years the entrepreneur has worked in the industry that the start-up operates (i.e. industry experience) and whether the entrepreneur has been involved in creating a start-up before (i.e. start-up experience). Lastly, respondents were asked whether they currently consider relocating their business.

[4] See Appendix B for the specific questions in the questionnaire.
[5] See Appendix C for the specific weights per country.
[6] See Appendix D.1 for table of covariates and their measurements.
[7] The fixed set of activities is based on the Panel Study of Entrepreneurial Dynamics (PSED) and previous studies (see Liao et al., 2005; Samuelsson & Davidsson, 2009). See Appendix D.2 for the activities identified.
[8] Division of industries is based on a combination of OECD (2011), Central Statistics Office (2011) and Colombo & Grilli (2010). See Appendix D.3 for the division of industries into these categories.

### 3.3.2 Individual needs

Concerning individual needs, psychological forces behind them have a clear effect on the willingness of individuals to move (Florida et al., 2008). For example, people that are more adventurous might move for the adventure as oppose to regional attributes (Florida et al., 2008). Personality differences that make an entrepreneur more adventurous are therefore taken into account as control variable[9]. Also, location preferences are conditioned by life-stage factors that make people more bound to their current location, such as marital status and whether the entrepreneur has children (Mellander et al., 2011). Demographic factors of the entrepreneurs, such as age and gender, also have a potential effect on migration patterns (Mellander et al., 2011; Grichnik et al., 2014). Lastly, the number of people in the founding team was measured, since more than one founder decreases the ability to exercise autocratic control over the decisions of the start-up (Oakey, 2003).

## 3.4 Descriptive statistics & correlations

Table 2 shows the mean, standard deviation and correlations between the covariates. This is based on the total of 935 early-stage entrepreneurs in the sample. The variable for industry contains 814 observations, because respondents had the possibility to choose "other". Within the sample, nearly 80% is male, which is in line with the higher proportion of men engaging in entrepreneurship in the sampled countries (Parker, 2009). Approximately 50% of the respondents is married and approximately 20% is living together with a partner. The remaining 30% is single. The mean age of the entrepreneurs is 37 years old. Regarding the start-up characteristics, the distribution of nascent and non-nascent entrepreneurs is approximately equal. Approximately 90% has never been involved in creating a start-up before.

Correlations of covariates are low, however a few are notable. First, age is positively correlated to marital status, children, industry experience and start-up experience with coefficients of .20, .25, .56 and .15 respectively. Also, age is negatively correlated with adventurous, nascent and considers relocating with coefficients of -.11, -.13 and -.14. These correlations are to be expected, because a higher age provides the ability to have more experience, and older individuals tend have higher costs involved in moving (Mellander et al., 2011). Nevertheless, to avoid inaccuracies, age was excluded from the model. Second, the size of the founding team is correlated to almost all other covariates. For this reason, this variable was also excluded from the model.

**Table 2**

*Descriptive statistics and correlations between covariates*

| | Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Founding team | 3.37 | 2.28 | | | | | | | | | | | |
| 2 | Age | 37.34 | 8.58 | -.11** | | | | | | | | | | |
| 3 | Gender | 1.21 | .40 | .07* | -.07* | | | | | | | | | |
| 4 | Marital status | 2.23 | .87 | .09** | .20** | -.01 | | | | | | | | |
| 5 | Children | 1.58 | .49 | .09** | .25** | .05 | .49** | | | | | | | |
| 6 | Industry experience | 8.70 | 6.88 | -.02 | .56** | -.07* | .14** | .20** | | | | | | |
| 7 | Start-up experience | 1.13 | .34 | -.01 | .15** | .00 | .02 | .10** | .13** | | | | | |
| 8 | Adventurous | 16.40 | 3.81 | .15** | -.11** | -.01 | .018 | .05 | -.11** | .01 | | | | |
| 9 | Activities | 4.20 | 3.06 | .11** | -.05 | -.02 | .05 | .04 | .03 | .05 | -.03 | | | |
| 10 | Nascent | 1.52 | .50 | .22** | -.13** | -.09** | -.02 | .01 | .01 | .00 | .13** | .22** | | |
| 11 | Industry | 1.94 | .91 | .07* | -.06 | .07 | -.09* | -.07 | -.01 | -.01 | .08* | .01 | .10** | |
| 12 | Considers relocating | 1.27 | .44 | .16** | -.14** | -.04 | -.06 | -.04 | -.12** | .06 | .26** | .040 | .22** | .12** |

*Significance codes: p < 0.001 '***', p < 0.01 '**', p < 0.05 '*'.*

[9] See Appendix D.2 for the questions asked to construct this variable.

## 3.5 Data analysis

I used the Latent Gold program to analyse the data from the choice tasks. This program was designed specifically for observing latent classes and has shown to outperform other programs of a similar type (Haughton et al., 2009). I estimated a multinomial logit model that allows the inclusion of the attribute levels that represented the location alternatives as explanatory variables (Vermunt & Magidson, 2005). The dependent variable was binary and indicated whether or not a location option was chosen. The attribute "costs and quality of living" showed some unexpected results (i.e. preferences for high costs of living and low quality of living). This may have been caused by inter-attribute correlation (Henscher et al., 2005), which means that decision makers do not necessarily treat attributes as being independent. The combination of costs and quality is a known example of this phenomenon, as high costs are generally associated with high quality (Henscher et al., 2005). For this reason, I separated this attribute into "costs of living" and "quality of living". Also, I added a control variable to the model for whether the option chosen was option #1 or option #2, called the position the option. This lead to a total of ten predictive attributes. All attributes were nominal, except for distance to loved ones, which was classified as numeric. Because respondents exhibit different degrees of consistency in the choices they made, which can lead to a bias in model estimates, I added scale classes. Scale classes correct this by clustering respondents who display a similar degree of consistency, based on the variance in their responses (Vermunt & Magidson, 2014).

I first estimated a model without classes. After that, I estimated models that defined two, three, four and five latent classes[10]. As is customary in latent class analysis, the optimal number of classes was determined by selecting the model with the lowest Bayesian Information Criterion (BIC) (Van Rijnsoever et al., 2015). To find the most parsimonious model, I removed class dependence of attributes that did not significantly differ between the identified classes and thus did not significantly contribute to class identification. After selecting the model that best describes the data for both choices, I performed a multinomial regression analysis using class membership as dependent variable to see whether members of the classes show significantly different characteristics when compared to the mean[11]. To compare class memberships of both models, I used a cross tabulation in SPSS.

[10] See Appendix E for syntax of best fitting model

[11] Because this approach can underestimate the effect of covariates on class membership of respondents (Vermunt, 2010), I also ran a model with added covariates as independent variables in Latent Gold. This did not improve the models.

# 4. Results

## 4.1 Model fit

Table 3 shows the results of the model. A three class model best explains the data. The McFadden $R^2$ is 0.26, which is acceptable for a choice model. In addition, it is an improvement of a model with one class which has a higher BIC and a McFadden $R^2$ of 0.10. The predicted probabilities (PP) refer to the likelihood that members of that class choose the option that contains that level of the attribute. This is the average likelihood of all combinations with other attributes and levels. Wald $\chi^2$ shows that all attributes significantly contributed to the model, however, not all contributed to class characterization. The availability of support services and the position of the option are class indifferent, which means that division of the classes is not based on these attributes.

## 4.2 Class characterisation

The following section describes the differences and characterization of the classes, based on similar choice patterns of entrepreneurs (table 3), the relative importance they allocated to the attributes (table 4) and the influence of the covariates on class membership (table 5).

**Table 3**

*Predicted probabilities and significance of attribute levels on class membership in the forced and free choice model*

| | | | All classes | | Class 1 (29%) | | Class 2 (21%) | | Class 3 (50%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PP | Sig. | PP | Sig. | PP | Sig. | PP | Sig. | Wald $\chi^2$ | Sig. | Wald $\chi^2$ (=) | Sig. |
| Economic | Access to markets | No easy access to any markets | | | 0.088 | *** | 0.029 | *** | 0.284 | *** | 81.5998 | *** | 75.6982 | *** |
| | | Regional markets only | | | 0.637 | *** | 0.905 | *** | 0.418 | *** | | | | |
| | | Global markets only | | | 0.817 | *** | 0.172 | *** | 0.525 | | | | | |
| | | Regional and global markets | | | 0.569 | | 0.944 | *** | 0.761 | *** | | | | |
| | Availability of capital | Little capital available | | | 0.474 | | 0.367 | *** | 0.229 | *** | 76.4806 | *** | 71.1349 | *** |
| | | A lot of early stage capital only | | | 0.508 | | 0.939 | *** | 0.277 | *** | | | | |
| | | A lot of growth capital only | | | 0.473 | | 0.691 | *** | 0.681 | *** | | | | |
| | | A lot of early stage and growth capital | | | 0.544 | | 0.048 | *** | 0.805 | *** | | | | |
| | Skills of workforce | Low-skilled workforce | | | 0.154 | *** | 0.225 | *** | 0.614 | *** | 70.0161 | *** | 62.1288 | *** |
| | | High business skills only | | | 0.768 | *** | 0.820 | *** | 0.162 | *** | | | | |
| | | High technical skills only | | | 0.529 | | 0.384 | ** | 0.700 | *** | | | | |
| | | High technical and business skills | | | 0.598 | ** | 0.548 | | 0.582 | *** | | | | |
| | Entrepreneurial community | Weak | | | 0.313 | *** | 0.145 | *** | 0.350 | *** | 65.1339 | *** | 40.4004 | *** |
| | | Strong | | | 0.687 | *** | 0.855 | *** | 0.650 | *** | | | | |
| | Availability of support services | Low | 0.413 | | | | | | | | 48.6983 | *** | | |
| | | High | 0.587 | | | | | | | | | | | |
| | Ease of doing business | Difficult | | | 0.113 | *** | 0.127 | *** | 0.506 | | 72.9996 | *** | 56.9644 | *** |
| | | Easy | | | 0.887 | *** | 0.873 | *** | 0.494 | | | | | |
| Individual | Distance to loved ones | | | | 0.101 | *** | 0.252 | *** | 0.504 | | 67.4234 | *** | 67.0983 | *** |
| | Costs of living | Low | | | 0.449 | | 0.883 | *** | 0.378 | *** | 63.0028 | *** | 62.1507 | *** |
| | | High | | | 0.551 | | 0.117 | *** | 0.622 | *** | | | | |
| | Quality of living | Low | | | 0.605 | ** | 0.057 | *** | 0.531 | *** | 68.5900 | *** | 67.8804 | *** |
| | | High | | | 0.395 | ** | 0.943 | *** | 0.469 | *** | | | | |
| | Position of option | | 0.173 | | | | | | | | 57.5535 | *** | | |
| | McFadden $R^2$ | 0,2641 | | | | | | | | | | | | |
| | BIC | 9785,2058 | | | | | | | | | | | | |
| | Nr of parameters | 48 | | | | | | | | | | | | |

*Significance codes: p < 0.001 '***', p < 0.01 '**', p < 0.05 '*'.*

**Table 4**
*Relative importance and ranking of attributes for all classes.*

| Attributes | | Class 1 | | Class 2 | | Class 3 | |
|---|---|---|---|---|---|---|---|
| | | **Share** | **Rank** | **Share** | **Rank** | **Share** | **Rank** |
| **Economic** | Access to markets | 0.14 | 3 | 0.16 | 1 | 0.17 | 3 |
| | Availability of capital | 0.01 | 10 | 0.15 | 2 | 0.22 | 1 |
| | Skills of workforce | 0.11 | 4 | 0.07 | 8 | 0.21 | 2 |
| | Entrepreneurial community | 0.06 | 5 | 0.09 | 7 | 0.10 | 5 |
| | Availability of support services | 0.03 | 8 | 0.02 | 10 | 0.06 | 7 |
| | Ease of doing business | 0.15 | 2 | 0.10 | 6 | 0.00 | 10 |
| **Indiv.** | Distance to loved ones | 0.40 | 1 | 0.14 | 4 | 0.01 | 9 |
| | Costs of living | 0.01 | 9 | 0.10 | 5 | 0.08 | 6 |
| | Quality of living | 0.03 | 7 | 0.14 | 3 | 0.02 | 8 |
| | Position | 0.06 | 6 | 0.04 | 9 | 0.13 | 4 |

**Table 5**
*Predicted probabilities of the effect of covariates on class membership in the forced choice model when compared to the mean. Entrepreneur and start-up characteristics.*

| **Variable** | **Level** | **Class** | **PP** | **Sig.** | **Variable** | **Level** | **Class** | **PP** | **Sig.** |
|---|---|---|---|---|---|---|---|---|---|
| Intercept | | 1 | 0.541 | | | | | | |
| Wald: 9.4468** | | 2 | 0.403 | | | | | | |
| | | 3 | 0.557 | | | | | | |
| Gender | Female | 1 | 0.524 | | Industry | Low-tech | 1 | 0.518 | |
| *Wald: 3.4906* | | 2 | 0.503 | | *Wald: 8.0116* | | 2 | 0.522 | |
| | | 3 | 0.473 | | | | 3 | 0.461 | * |
| Marital status | Married | 1 | 0.517 | | Start-up experience | | 1 | 0.449 | * |
| *Wald: 4.912* | | 2 | 0.516 | | *Wald: 8.1368** | | 2 | 0.563 | ** |
| | | 3 | 0.467 | * | | | 3 | 0.488 | |
| Activities performed | | 1 | 0.509 | * | Adventurous | | 1 | 0.491 | * |
| *Wald: 7.8304** | | 2 | 0.497 | | *Wald: 4.8036* | | 2 | 0.500 | |
| | | 3 | 0.494 | | | | 3 | 0.509 | * |
| Nascent | | 1 | 0.467 | * | Considers relocating | | 1 | 0.455 | * |
| *Wald: 7.8304** | | 2 | 0.543 | ** | *Wald: 14.7686**** | | 2 | 0.493 | |
| | | 3 | 0.490 | | | | 3 | 0.552 | *** |

*Significance codes: p < 0.001 '***', p < 0.01 '**', p < 0.05 '*'.*

### 4.2.1 Class independent

The availability of support services does not have a significant influence on the location decision of the entrepreneurs. The presence of an entrepreneurial community does have a positive influence on members of all classes[12]. This implies that, in line with Wenting et al., (2011), entrepreneurs value a location where entrepreneurs are willing to help each other and are able to share knowledge. Members of the classes however, differ in their preference as to the importance of this attribute (see table 4). Also notable for all classes is that access to market is important. All entrepreneurs reject a location that does not have access to any markets. Unsurprisingly, being able to reach customers is a basic need for all entrepreneurs that a location should fulfil. This shows technology-based early-stage entrepreneurs recognize the importance of user-producer interaction (Lundvall, 1985). Preferences of the entrepreneurs differ per class for access to regional, global or both markets.

### 4.2.2 Class 1 – The embedded entrepreneur

Class 1 contains 29% the respondents. The most notable feature of this class is the high importance of distance to loved ones (see table 4). Because of this, members of this class are not likely to move far away from their loved ones. In line with these findings, table 5 shows members of this class are less likely to consider relocation of their start-up, and are less likely to be adventurous. In addition, they are likely to have performed more activities to start their business and less likely to be in the nascent stage. This indicates that these entrepreneurs are in a later stage of development and thus more embedded in their social network, making the start-up more path dependent (Gulati, 1998). Results of this class indicate that this class can be characterized in line with Dahl & Sorenson (2009) and Stam (2007) as the embedded entrepreneur.

Embeddedness in the current location has its effect on other attributes as well, such access to the market (Gulati, 1998). A European entrepreneur referred to the benefits this provides: *"We have the network of people that want to help us, who spread the word and get things done through partnerships with local companies. They will help us reach the important clients. We are sort of plugged into the industry here. So that's why I'm keen to start the business here."* This interpretation is supported by Michelacci & Silva (2007) who argue that easier access to customers through personal networks could be related to a local bias in entrepreneurship.

The embedded entrepreneur has a preference for access to either the regional or global market, although the global market is slightly more preferred. The relatively later stage of development of these entrepreneurs explains why the preference for global markets is slightly larger than the preference for regional markets. Another European entrepreneur implied that the preference for a certain type of market is indeed stage dependent: *"This is a great pilot market but it is not a huge economy. Of course, the idea will be to start here, validate all the things we need to validate and once we have a solid project and value proposition, we will move to other markets."*

Furthermore, table 5 shows members of this class are less likely to have experience with setting up start-ups. Politis (2008) argues that entrepreneurs with start-up experience have developed an entrepreneurial mind-set and a problem-solving ability. This increases their ability to identify opportunities, such as economic attributes. The lack of start-up experience would explain why members of this class are less sensitive to most economic attributes. Such an interpretation is supported by the minor importance of availability of capital, which implies members of this class are insensitive to financial incentives. Less experience may also have its effect on the utility attached to the ease of doing business. An experienced entrepreneur is argued to have more knowledge on gathering the right information (Politis, 2005). A European entrepreneur illustrates the struggles involved with moving to another location: *"Bureaucracy in Chile is a nightmare. Everything you have to do takes at least twice as long. You lose hours for all the problems you try to solve. While you should be concentrated on your start-up."*

[12] Equality constraints did not significantly improve the model.

### 4.2.3 Class 2 – The creative entrepreneur

Class 2 contains 21% of the respondents. A notable feature of this class is that predicted probabilities are relatively varied and that both economic and individual attributes have significant influences. Within the individual needs, quality of living has a high importance, which suggests members of this class are in line with Florida's (2004) creative class. This interpretation is supported by the relatively similar importance of the presence of an entrepreneurial community. Florida (2004) argues that the most important attribute that makes a place appealing to creative individuals is the opportunity to validate their identities as creative individuals. Entrepreneurial communities can facilitate this by providing a community of peers who face similar problems, and thus create a sense of shared identity (Van Weele, 2012). This class however shows a nuance to the creative class, as other attributes show high importance as well. Distance to loved ones, access to market and availability of capital are equally important as quality of living. This implies that it is not only the quality of living that attracts this type of entrepreneur, but also the economic attributes. Combining these two insights, I call members of this class the creative entrepreneur.

Members of this class have a strong preference for access to at least a regional market. Table 5 shows that members of this class are more likely to be in the nascent stage of development, which would explain their preference for regional markets. As an entrepreneur illustrated this: *"From the market perspective, I will stay here for as long as I can because I want to develop the pilot tests and reach those first customers. Every start-up should work closely with the first customers to see how everything works".*

Furthermore, members of this class prefer availability of both types of capital. In line with their stage of development, this is preferably early stage capital. It seems contradictory that members of this class prefer the presence of one of these types of capital, but reject locations that have high availability of both types of capital. A possible explanation is that entrepreneurs associate the presence of both capitals with a lot of competition to get this funding. A European entrepreneur stated: *"Many people fly to the US, because that is where you will find many investors, but it is hard as well because it is very competitive in terms of funding."* Another explanation would be that entrepreneurs do not want to rely too much on external sources of funding and therefore seek capital for only one stage of development. An interviewee said he aimed to rely as little as possible on external sources of funding, allowing him to validate his company: *"They give you money so you can sustain an activity, but you also get more lazy because you are expecting that someone is going to give you money for continuing. Maybe your company is not good enough and deserves to die, but in this case you will never know."*

As members of this class are more likely in the nascent stage and therefore less path dependent, they are more flexible to relocate for economic reasons, such as market and capital. Also, members of this class are more likely to have experience with setting up a start-up. This may explain the high influence of economic attributes, as their experience causes them to know what they need in order to successfully set up a start-up (Politis, 2008).

### 4.2.4 Class 3 – The opportunity-driven entrepreneur

Class 3 contains 50% of the respondents. A remarkable feature of this class is that members primarily base their location decision on economic attributes. Individual attributes show low importance (see Table 4). Contrary to both other classes, distance to their loved ones does not have a significant influence on their location decision. This implies members of this class are more likely to move to another location if this benefits the start-up. *"We met in London and all three of us are from three different countries, so we're very unattached to any particular location. We don't have a wife or kids. Everyone is really detached from their families and their houses."* Even aspects such as cultural, language and bureaucratic barriers do not hinder their search for beneficial economic attributes, as the ease of doing business shows no significant influence. The same entrepreneur stated: *I guess language would be a barrier, but it didn't stop us here. Eight months have passed and now I can speak Spanish, which is brilliant. So at the moment it's all really fun and exciting.* In line with their lower utility attached to distance to loved ones, members of this class are

less likely to be married, more likely to be adventurous, and more likely to currently consider relocating (see table 5). These characteristics make them more flexible to move.

Bosma & Sternberg (2014) referred to the entrepreneur who gets pulled into entrepreneurship by the prospect of opportunities such as demand for their products. I define members of this class in line with their definition as opportunity-driven entrepreneur. Note that this does not imply that the other two classes are necessarily necessity-driven entrepreneurs.

The costs and quality of living are both significant (see table 3), but show a low importance (see table 4). The negative influence of low costs of living seems surprising. It seems likely that inter-attribute correlation between costs and quality caused them to be associated with each other (Henscher et al., 2005). As costs of living refers to housing and transportation, respondents potentially associated high costs with a high quality lifestyle. This implies, for instance, that members of this class prefer a house in an expensive neighbourhood and commute by means of comfortable transport. They reject quality of living in the form of tolerant places with the presence of bars and restaurants—as defined in this research.

Table 5 shows that members of this class are more likely to be medium-tech or high-tech. One could expect that this would binds them more to a location, because of increasing returns on high investments necessary in high-tech sectors (Arthur, 1994). However, because of the early stage of all respondents, they might not have made the investments yet. This would make them eager to go to the location where they can obtain this high investment, which is supported by the high importance of the availability of capital shown in table 4. Members of this class prefer a location with at least the availability of growth capital. Additionally, members of this class prefer the access to both types of markets and a location with a workforce that has at least high technical skills. In line with the argument of Keuschnigg & Nielsen (2003), one would expect a preference for business skills, as members of this class are more likely to be medium-tech or high-tech. This is however not the case. Oakey (2003) argues that technical entrepreneurs believe business skills can be self taught, which gives them an early advantage of low costs, since one person performs all both technical and business functions.

# 5. Conclusion & Discussion

This study aimed to shed light on the influence of region attributes on the location decision of different latent classes of early-stage entrepreneurs. The results show that the location decision can be best explained by identifying three latent classes of entrepreneurs: 1) the embedded entrepreneur; 2) the creative entrepreneur; and 3) the opportunity-driven entrepreneur. All classes of entrepreneurs rejected locations that do not have access to any markets or that have a weak entrepreneurial ecosystem. The availability of support services showed no significant influence on the location decision of all entrepreneurs. Because all other attributes did have a significant influence on the decision of at least one class of entrepreneurs, it can be concluded that entrepreneurs do value the resources often provided by incubators or accelerators. They are, however, indifferent about whether they obtain these resources through these support services or not.

The remaining attributes create heterogeneity among the entrepreneurs. The three latent classes can largely be differentiated on the relative influence of economic and individual attributes on the location decision. This lead to differences in likelihood of leaving their home region. The choice pattern of the embedded entrepreneur is, in line with findings of Dahl & Sorenson (2009), largely driven by the individual need to stay close to loved ones. Embedded entrepreneurs are likely to have a start-up that is in the more advanced stage of development. Creative entrepreneurs maximize their utility on the basis of both economic and individual attributes. Their preference is partly in line with the creative class of Florida (2004), but also attach utility to other attributes, of which mostly to distance to loved ones, access to market and availability of capital. Creative entrepreneurs are likely to have start-up experience and in the nascent stage of the current start-up. Lastly, opportunity-driven entrepreneurs base their location decision largely on economic attributes which benefit the start-up and are not driven by the distance to loved ones. This type of entrepreneur operates in a medium-tech or high-tech industry.

## 5.1 Theoretical implications

Findings of this study have important theoretical implications for research on entrepreneurship. In particular regarding to research in the entrepreneurial ecosystem literature and research on individual behaviour of entrepreneurs, such as the creative class (Florida, 2004) and the embedded entrepreneur (Dahl & Sorenson, 2009; Stam, 2007).

Regarding the entrepreneurial ecosystems literature, the individual perspective gave new insights into the importance of individual needs in the location decision of early-stage entrepreneurs. As entrepreneurial ecosystems literature aims to explain the emergence of communities of technological entrepreneurs (Spigel, 2015), the individual needs of entrepreneurs provide a valuable contribution. Moreover, the economic attributes of entrepreneurial ecosystems were not yet linked to the location decision of entrepreneurs. The individual perspective of the entrepreneurs gave insights into the influence of these economic attributes on the location decision and gave reason to critically assess the role of certain attributes in the entrepreneurial ecosystem.

First, the insignificant influence of the availability of support services is surprising when looking at the role incubators are argued to have on the entrepreneurial ecosystem (Chandra & Mandano Silva, 2012). Moreover, incubators are seen as a popular policy instrument to foster entrepreneurship (Tamásy, 2007; Bruneel et al., 2012). In addition, the International Business Innovation Association (NBIA) estimates that there are about 7,000 incubators worldwide (NBIA, 2015). A possible explanation could be, as argued by Oakey (2003), that technology-based entrepreneurs tend to prefer creating a start-up independently. However, the significant influences of the other attributes suggests that entrepreneurs value the resources often facilitated by incubator or accelerators, such as access to an entrepreneurial community (Van Weele, 2012). Future research could investigate what the main reasons are for entrepreneurs to start a business with or without the help of an incubator.

Second, entrepreneurial ecosystem literature generally assumes that any location where capital can be accessed is a good place to establish a business (Clark et al., 2003). However, results of this study show that this is not always the case, as financial capital does not have a significant influence on the location decision of 29% of the entrepreneurs.

For studies on the creative class (Florida, 2004), findings suggest that the concept of the creative class should be extended when applied to technology-based early-stage entrepreneurs. First, the influence of distance to loved ones is significant, which means that the creative entrepreneur is not light-hearted about leaving loved ones in order to live in a creative region. One can argue whether the creative individual is attracted to creative regions, as Florida (2004) suggests, or whether creative regions cause individuals to be creative. This implies that the creative entrepreneur could have it all when his or her home region *is* such a creative region. The lack of showing a cause-effect relationship in Florida's (2004) has been criticised before (Wenting et al., 2011). Future research could investigate whether the respondents in the creative entrepreneur class indeed currently live in creative regions. Also, the economic attributes, except for availability of support services, have a significant influence the location decision of the creative entrepreneur. This attribute should therefore be taken into account when studying location behaviour of the creative entrepreneur.

Finally, the findings of Dahl & Sorenson (2009) and Stam (2007) show most of the entrepreneurs are not likely to leave their home region, although results of this study show it is only a minor share of the entrepreneurs (i.e. class 1). This difference is likely due to methodological reasons. Dahl & Sorenson (2009) used a sample of early-stage entrepreneurs who had at least registered their start-up and had at least one employee in the first year. Stam (2007) focused specifically on start-ups that were between five and eleven years old. Although the entrepreneurs in their samples may theoretically have paid salaries for less than three months, and thus be in the nascent stage of their start-up, it is unlikely that many of them indeed were. Findings of this study show that indeed members of class 1 are less likely to be nascent. This explains findings of Dahl & Sorenson (2009) and Stam (2007) that entrepreneurs are not likely to leave their home region. Therefore, the focus on early-stage entrepreneurs, and specifically the distinction between nascent and non-nascent, proved to be a valuable contribution. This implies that scholars studying entrepreneurial or start-up behaviour that involves a potential influence of path dependency should aim to make this distinction.

Other covariates were able to show some observed differences between the classes, such as the nascent stage of the start-up. However, the lion share of the variety remained unexplained. This implies that unobserved heterogeneity provides a valuable contribution when researching entrepreneurial decision making.

## 5.2 Policy implications

Results of this study provide implications that are particularly useful for policy makers who aim to strengthen the entrepreneurial ecosystem in their region. It has become clear that replication of successful entrepreneurial ecosystems, such as Silicon Valley, fail to proof successful (Neck et al., 2004). Policy therefore increasingly focuses on location specific opportunities for their region (Bosma & Sternberg, 2014). Policy makers can use the results of this study to tailor their policy in line with its current strengths. Using these results as a guideline, policy makers can identify to which attributes they already provide sufficient support and by which type of entrepreneur this is preferred. Following this line of reasoning, some regions should choose to nurture the embedded entrepreneur, others should aim to attract the opportunity-driven entrepreneurs, and others should nurture the creative entrepreneur and try to attract more creative entrepreneurs. For instance, both the embedded and the creative entrepreneur highly value business skills, whereas the opportunity-driven entrepreneur does not. Regions with strong business skills should therefore focus on strengthening the position of local entrepreneurs rather than attracting new entrepreneurs. Similarly, regions with a lot of technical skills should advertise this, in order to attract opportunity-driven entrepreneurs. Also, regions with a lot of

early stage and growth capital would be wise to focus on attracting the opportunity-driven entrepreneur rather than creating policies that supports the embedded entrepreneurs.

Once either of these strategies are chosen, policy makers can identify which attributes that type of entrepreneur prefers and thus should be strengthened. Policies that aim to nurture the embedded entrepreneur could for instance facilitate the ease of doing business, by removing bureaucratic barriers. A certain approach also supports the creative entrepreneur. Policies that aim to attract the creative entrepreneur should pay attention to the entrepreneurs loved ones. This means that a region does not only need to provide good economic attributes—in the form of a well-operating entrepreneurial ecosystem—and a high quality of living, but also needs to pay attention to creating a good environment for the entrepreneurs family. This may include simplifying access to job opportunities for the partner of the entrepreneur and quality schools for the children. Moreover, low costs and high quality of living are important attributes for the creative entrepreneur that can convince him or her to either stay or go to a region that satisfies that individual need. These adjustments to what attracts the creative entrepreneur explains why the effectiveness of previous policy aiming to attract the creative class have been disputed (Glaeser, 2005). Finally, policies that aim to attract the opportunity-driven entrepreneur should not be concerned about improving the quality or costs of living, but should aim to create an interesting region for potential customers of the entrepreneur, financial investors such as venture capitalists and talented individuals that are willing to work for start-ups. In order to create even more effective policies, future research could investigate the relationship between start-up success and the different types of entrepreneurs.

## 5.3 Limitations

A few limitations of this research need to be addressed. First, one of the most common criticisms on the use of DCE is that it reveals stated preferences instead of revealed preferences (Van Rijnsoever et al., 2012). Although it is unknown whether respondents will behave in a similar manner as stated, stated preferences are an important predictor of actual behaviour (Ajzen, 1991; Liao & Welsch, 2003). Moreover, the experimental design used provides results with a high internal validity and valuable insights into unobserved heterogeneity. It would be interesting to check the robustness of the data by studying revealed preferences, for instance by characterizing the current locations of respondents of this study in line with the attributes. Second, it should be noted that locations are frequently discovered by chance (Berg, 2014) or through the network of the entrepreneur (Stam, 2007). This means entrepreneurs may never get in the situation where they have to outweigh the attributes of different location options. It is however a distinct benefit of a DCE that it can study situations entrepreneurs were not necessarily confronted with, and gives insights into the influence of individual attributes. Moreover, the present approach provides valuable information on the preferences of entrepreneurs once they—either accidently or purposefully—discovered a location. Lastly, the duration of the stay was not specified in the choice task. Preferences are likely to be different for location decisions that concern shorter time periods, especially regarding the distance to loved ones. However, from the objective of simplicity, this study had to limit the amount of attributes to as little as possible. Future research could consider incorporating “duration of the stay” as an attribute, or create two series of choice tasks.

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# Appendix A - Qualitative method

## A.1 Description of qualitative method

Although its role is supportive, the contribution of the qualitative part is significant. Qualitative interviews tend to obtain rich and detailed information, (Bryman, 2008, p. 437) which offers an insight into the underlying mechanisms of the influence of the regional attributes on the decision. Interviews were aimed at identifying characteristics of locations that are perceived as beneficial and location-specific. Another important contribution was information on the chronology of the decision process, as people are likely to connect with an organization such as an accelerator or investor in the location of their destination. Entrepreneurs can decide accordingly to locate somewhere despite location characteristics solely for the fact the organization is located there. These insights contributed to the formation of the attributes of the DCE, resulting in logical choice tasks assisting the identification and inclusion of all important attributes, and simultaneously supporting its simplification. In addition, the insights contributed to the validation and explanation of the results at the end stage.

*Sample strategy & data collection*

The interviews were conducted in the entrepreneurial ecosystem of Santiago de Chile, because it is a prime example of a city where the government succeeded in attracting thousands of foreign nascent entrepreneurs to start their business in Chile (Forbes, 2012). An additional set of interviews was conducted in the entrepreneurial ecosystem of Buenos Aires as this is an opposite example where public policy cut the country off from the international capital-market (Huffington Post, 2014), making it difficult to do business. Still, "the country is making its case to be known as a hub for technology, software development, and entrepreneurship" (McGinnis, 2014). Combining information from these two entrepreneurship ecosystems that are emerging because of different reasons and under different conditions, contributed to a broader understanding of the attractiveness of a location.

Data was collected between March and May 2015. During this period of time, the researcher was based in Santiago de Chile and immersed in the start-up community by working at the co-working space of Start-up Chile (SUP) and the School of Business and Economics of the Universidad del Desarrollo (UDD). Respondents were theoretically sampled through attending network events and through being introduced to contacts of SUP and UDD. Additional interviewees were reached through snowballing. The potential selection bias was mitigated by using a diverse set of interviewees, warranting different perspectives on the regional attributes that may be at play. To really understand geographic clustering, examining entrepreneurs as well as other key institutions and individuals is necessary (Feldman, 2014). For this reason, community managers, policy-makers, investors and a university staff-member were interviewed. In total, 22 qualitative semi-structured interviews with 24 interviewees were conducted. 15 interviewees were entrepreneurs, of which four were Chilean, ten were foreign and familiar with the entrepreneurial ecosystem of Santiago, one was foreign and living in Buenos Aires. Seven of the entrepreneurs were—or had been—affiliated with the Start-up Chile program. All but three entrepreneurs had a technology-oriented business in a variety of industries—either in hardware or software—and all but two, a scalable business plan. When possible, interviews were performed face-to-face and twice via Skype. An overview of the interviewees is shown in table 1.

| City | Number of interviewees | Interviewees per category | Interviewees by home country |
|---|---|---|---|
| Santiago, Chile | 21 | 14 Entrepreneurs<br>6 Community managers<br>3 Policy makers<br>2 Investors<br>1 University staff | 11 Chile<br>5 Europe<br>3 United States |
| Buenos Aires, Argentina | 5 | 3 Entrepreneurs<br>1 Policy maker<br>2 Community managers | 4 Argentina<br>1 United States |

**Table 1: Overview of interviewees per city, per category and per home country.**
Interviewees often fit in more than one category, for instance when the entrepreneur has lived in both cities, or when the entrepreneur started a company with a facilitating role, or because of relevant insights from the interviewees' former occupation. Consequently, the number of interviewees per category add up to more than the total of 24 interviewees.

*Interview scheme and data analysis*

The attributes identified in the theoretical framework were used as guidelines for the interviews, but these were only asked after the list of open questions was complete. This allowed respondents to first give their own perspective, instead of following the structure of a predefined set of attributes (Kvale, 2008). Two different interview outlines were made: for entrepreneurs and for non-entrepreneurs (see appendix A for outline). Both outlines started with some introductory questions about the interviewee and its start-up or organization. In this part, foreign entrepreneurs were additionally asked to describe their decision-making process of coming to Santiago de Chile. In the second part, we discussed and ranked the characteristics of the entrepreneurial ecosystem of Santiago and/or Buenos Aires. Only the outline for the entrepreneurs had a third part, in which we discussed considerations on future plans.

The interviews were recorded, transcribed and notes were taken during the interviews on key concepts mentioned by the interviewee. Transcripts were analysed using the qualitative data analysis programme NVivo. The codes were interpreted in line with concepts from the theoretical framework, while remaining open to new codes and concepts. Because the qualitative part does not have priority but rather supports the execution of the quantitative part, the process of coding stayed on a higher level of abstraction. Codes were used as input for fine-tuning the choice tasks in the DCE.

## A.2 Interview schemes

**Interview scheme Entrepreneurs**

I am a researcher from the Netherlands, my research focuses on entrepreneurship and the decision of entrepreneurs to start their business in a certain location. I do a Master in Innovation sciences at the University Utrecht and this is the research I do for my master's thesis. I would like to starts this interview with some introductory questions about you and your start-up. After that, we will discuss and rank the support that is being provided to you by being here in Santiago. After that, I would like to ask about your possible future plans. Do you have any questions before we begin?

*Part 1: Introductory questions*

1) First of all, could you state your name and age, as well as the company name?
    a) What is the number of employees?
    b) How long have you been working for this start-up / how old is the start-up?
2) What is the company about; what is the basic product or service that you're developing?
3) What stage are you currently in?
    a) Do you have a working prototype? Do you have customers? Are you paying salaries?
4) What is your personal background? (do you have any previous entrepreneurial experience)
5) What were the reasons for you to become an entrepreneur?
    a) What do you want to accomplish?

*Part 2: Entrepreneurial climate*

6) How would you describe the entrepreneurial ecosystem of Santiago?
    a) What are strengths and weaknesses? (E.g. regulations, availability of capital, level of ambition, culture, etc.)
    b) What would you suggest makes the entrepreneurial ecosystem better?
*7)* What were your reasons for coming to Santiago? *(Only for foreign entrepreneurs)*
    a) Did you consider alternatives?
    b) Was there a distinction between business and personal considerations to come here?
    c) What were the most important reasons to go and the most important objections
    d) Did you first consider the conditions of SUP and then of Santiago and Chile, or the other way around?
8) Did you make a plan for the duration of your stay? *(Only for foreign entrepreneurs)*
    a) Would other things be more important if you decided to stay for a longer period?
9) What do you think is most important in the support offered by the location?
10) SUP provides many forms of support: funding, an alumni network, mentoring, sharing knowledge, etc. Looking back at your time at SUP, what have been the most important forms of support? *(Only for entrepreneurs part of Start-up Chile)*

*Part 3: Future plans*

11) Are you thinking of moving to another location right now? Why?
    a) YES: What are locations you are looking at and what do these other locations have?
    b) YES: What would make you stay here?
    c) NO: What is the reason to stay here?
    d) NO: Maybe later? (further in the development of the start-up process)
12) Would there be a point in the development of your start-up where you would stay in one location?
    a) Which would be the most important considerations to stay in a location forever/undefined period?
    b) Would this be with the entire team?
    c) When do you think is this point?

**Interview scheme facilitators**

I am a researcher from the Netherlands, my research focuses on entrepreneurship and the decision of entrepreneurs to start their business in a certain location. For that purpose, I am investigating the characteristics of the location of Santiago de Chile, as it has been successful in attracting foreign entrepreneurs. When I've identified those characteristics, these will be part of a survey that will be send to early stage startup entrepreneurs. I do a Master in Innovation sciences at the University Utrecht and this is the research I do for my master's thesis. I would like to starts this interview with some introductory questions about you and your incubator. After that, we will discuss and rank the characteristics of the entrepreneurial ecosystem of Santiago. Do you have any questions before we begin?

*Part 1: Personal and incubator background*

1) Can you tell me a little bit about your personal background?
    a) Any entrepreneurial experience?
2) What is your role and what are your responsibilities within this incubator?
3) Can you describe the background and goals of the incubator?
    a) When was it founded, with what purpose?
    b) What is the business model? (non-profit / rent / who invests?)
    c) What is the size in terms of employees and start-ups?
    d) What is the phase start-ups are in when they apply here?
    e) What industry do you focus on?
    f) With which organizations do you cooperate? And what do they add?
    g) What is the support you give?
    h) What do you think is the most important support of the incubator?
    i) What is the division of foreign/domestic entrepreneurs? Do they require a different approach for guidance?

*Part 2: Entrepreneurial climate*

4) How would you describe the entrepreneurial ecosystem of Santiago?
    a) What are strengths and weaknesses? (E.g. regulations, availability of capital, level of ambition, culture, etc.)
5) What do you think is most important in the support offered by the location?
6) What do you think are attractive characteristics of Santiago for entrepreneurs to come here?
    a) Do you see any patterns or common behaviours by start-ups?
    b) Does a certain type of entrepreneur come to Santiago?
7) What do you notice are reasons for entrepreneurs to stay in Santiago?
8) And what do you notice are reasons to leave Santiago?
9) Where do they usually go when they leave Santiago?
10) What would you change to strengthen the entrepreneurial ecosystem to make it more attractive for start-ups?

# Appendix B - Questionnaire

**dCountry**

1. **USA**
2. **UK**
3. **IE**
4. **CA**
5. **FR**
6. **DE**
7. **AT**
8. **CH**
9. **NL**
10. **BE**

**ASK ALL**

**S1**

Are you, alone or with others, currently trying to start a new business? This includes any self-employment or selling of goods or services to others.

1. No **TERMINATE**
2. Yes

**ASK ALL**

**S2**

Would you consider the new business to be a technology - based start-up?

*A technology - based start-up is a new firm whose business is based on the exploitation of technological know-how through the creation of new products and services. Examples include the development of a new drug or software service.*

1. No **TERMINATE**
2. Yes

**ASK ALL**

**S3**

What is the primary sector in which your business operates, or will operate?

1. Aerospace
2. Artificial Intelligence
3. Basic metals
4. Biotechnology & Pharmaceuticals
5. Chemistry
6. Clean technology
7. Coke and petroleum products
8. Electrical engineering & equipment
9. Energy
10. Fabricated metal products

11. Functional or processed food
12. ICT & Computers
13. Information systems
14. Machinery
15. Medical & dental instruments
16. Motor vehicles
17. Nanotechnology
18. Nuclear physics
19. Optical products
20. Other non-metallic mineral products
21. Photonics
22. Repair & installation machinery
23. Reproduction recorded media
24. Robotics
25. Rubber and plastic products
26. Ships and boats
27. Tele-communications
28. Transport
29. Transport equipment
30. Water
31. Weapons & ammunition
98. Other, please specify: **OPEN**

**ASK ALL**

**S4**

In the past 12 months, in which of the following activities have you engaged during the development of your business?

*Tick all that apply:*

1. Formally registering the business
2. Preparing a written business plan
3. Organizing a start-up team
4. Devoting yourself full time to the business (more than 35 hours per week)
5. Developing a proof of concept or working prototype
6. Applying for a patent / copyright / trademark
7. Defining market opportunities
8. Hiring employees
9. Asking financial institutions or other people for funds
10. Receiving money from the sales of goods or services
11. Purchasing materials, equipment, facilities, or other tangible goods for the business
12. Discussing the new business' product or service with potential customers
99. None of the above **EXCLUSIVE / TERMINATE**

**ASK ALL**

**S5**

Has the new business paid any salaries, wages, or payments in kind, including your own?

*"Payments in kind" refers to goods or services provided as payments for work rather than cash. Payments in kind do not include stock options.*

1. No
2. Yes

**ASK IF S5 = 2**

**S6**

For how long has the new business been paying salaries, wages or payments in kind, including your own?

1. For 0 to 3 months
2. For 3 to 6 months
3. For 6 to 12 months
4. For 1 to 2 years
5. For 3 to 5 years
6. For more than 5 years **TERMINATE**

**ASK ALL**

**S7**

Do you, or will you, personally own all, part, or none of this business?

1. All
2. Part
3. None **TERMINATE**

**ASK IF S7 = 2**

**S8**

Is or will the new business be a subsidiary?

*A subsidiary is a venture of which another organization owns more than 50% of voting shares.*

1. No, the new venture is not the subsidiary of another organization
2. Yes, the new venture is a subsidiary of another organization **TERMINATE**

98. Other, please specify: **OPEN**

97. Don't know

**INFO1**

**PLEASE SHOW TEXT UN-BOLDED**

Dear participant,

This study is about entrepreneurial decision making. Policy makers around the world are currently trying to create favorable conditions for innovative entrepreneurship. Such policies not only aim to support domestic entrepreneurs, but also aim to attract foreign entrepreneurs. A prominent part of these policies is the creation of 'incubators'. These incubators provide early-stage start-ups with a wide range of services and resources such as office space or funding. We explore why entrepreneurs favor a particular location or incubator over another. We can thereby help to design policies that are in line with entrepreneurs' demands.

This survey consists of three parts. In the first part, we give you a series of choice tasks in which you are asked to state which location you are most likely to choose to establish your business. In the second part, you are asked to state which incubator you are most likely to choose to help you develop your business. In the third part, we will ask you some questions about yourself and your business.

Completing the entire survey will take approximately 20 minutes. Please answer all questions honestly; there are no right or wrong answers! We will evaluate the data anonymously.

This study is conducted by Utrecht University and is funded by the European Climate-KIC program (see www.Climate-KIC.org).

Thank you for your participation!

On behalf of Utrecht University,

Marijn van Weele
Frank van Rijnsoever
Fenna Cerutti
Menno Groen

**ASK ALL**

**Q1**

Where do you currently live?

1. State / region / province: **OPEN**
2. City: **OPEN**

**ASK ALL**

**Q2**

Are you currently considering to relocate your business to another region? *By 'region' we refer to a particular city and the greater metropolitan area around it.*

1. No
2. Yes

**ASK ALL**

**Q3**

Can you briefly explain your considerations for choosing the region where your business is currently located, or will be located? **OPEN**

**ASK ALL**

**Q4**

If you were to relocate your business to another region, which of the following regions would you consider?

*Tick all that apply.*

**Europe**

1. Amsterdam (The Netherlands)
2. Berlin (Germany)
3. London (United Kingdom)
4. Paris (France)
5. Tel Aviv (Israel)

**North America**

6. Boston (United States)
7. New York (United States)
8. Silicon Valley (United States)
9. Toronto (Canada)
10. Vancouver (Canada)

**Asia**

11. Hong Kong (China)
12. Seoul (South Korea)
13. Shanghai (China)
14. Tokyo (Japan)

**South America**

15. Santiago (Chile)
16. Sao Paulo (Brazil)

**Australia**

17. Melbourne (Australia)
18. Sydney (Australia)

98 Other, please specify: **OPEN**

99 None **EXCLUSIVE**

**INFO2**

Imagine that you were to relocate your business. We ask you to choose between two hypothetical regions to locate your business. Each region has its own characteristics. Below is a table 5o help you understand these characteristics and their respective levels. Based on these characteristics we ask you to choose the preferred region to locate your business.

*Remember that a region refers to a particular city and the greater metropolitan area around it. Characteristics that are not mentioned in the table, do not vary across regions.*

| Attribute | | Description | Levels |
|---|---|---|---|
| 1 | Access to markets | The ability to access your target customers.<br>• Easy access to regional markets means that there are many of your (potential) customers in the region.<br>• Easy access to global markets means that there are few geographic, regulatory or cultural barriers for expanding internationally | 5. No easy access to any markets<br>6. Regional markets only<br>7. Global markets only<br>8. Regional and global markets |
| 2 | Availability of capital | • Early stage capital is the initial capital for starting the business.<br>• Growth capital refers to additional rounds of funding required to expand the business.<br>When there is a lot of capital, there are many investors, and raising capital is relatively easy and fast. | 5. Little capital available<br>6. A lot of early stage capital only<br>7. A lot of growth capital only<br>8. A lot of early stage and growth capital |
| 3 | Skills of workforce | The skills of the potential employees for your start-up.<br>• Technical skills include research, programming and product development skills<br>• Business skills include management, marketing and business development skills<br>Highly skilled employees are well-educated, efficient and productive | 5. Low-skilled workforce<br>6. High business skills only<br>7. High technical skills only<br>8. High technical and business skills |
| 4 | Entrepreneurial community | The presence of a local community of entrepreneurs. In strong communities, entrepreneurs are well connected and willing to help each other by making introductions or by sharing knowledge. | 3. Weak<br>4. Strong |
| 5 | Availability of support services | Support services consist of start-up incubators and professional service providers (like accountants, attorneys and specialized consultants). When the availability of such services is high, they are easily accessible, effective and affordable. | 3. Low<br>4. High |
| 6 | Ease of doing business | The ease of opening and operating a local business. When it is easy to do business, there are low levels of bureaucracy and corruption, few language and cultural barriers, and many business-friendly policies. | 3. Difficult<br>4. Easy |
| 7 | Distance to loved ones | The distance from your start-up's location to your loved ones, such as close family and friends. This is measured as the total amount of travel time. | 7. < 1 hour<br>8. 1 - 3 hour<br>9. 3 - 6 hours<br>10. 6 - 10 hours<br>11. 10 - 16 hours<br>12. > 16 hours |
| 8 | Costs and quality of living | • The costs of living include monthly costs of housing, transportation, leisure and other daily expenses.<br>• Quality of living refers to the region's level of safety, sense of comfort and tolerance to immigrants and minorities. It also includes the presence of bars, restaurants, cultural activities and other facilities. | 5. High costs of living & low quality of living<br>6. High costs of living & high quality of living<br>7. Low costs of living & low quality of living<br>8. Low costs of living & high quality of living |

**CHOICE TASKS**

**Q5**

Imagine that you were to relocate your business. We ask you to choose between two hypothetical regions to locate your business. Each region has its own characteristics. You can find the table 5o help you understand these characteristics and their respective levels here. Characteristics that are not mentioned, do not vary across regions.

There are two questions:

Question 1: which hypothetical region would you most likely choose to establish your business?

Question 2: which hypothetical region(s) would you actually consider in a real life setting?

Answer the questions by ticking the boxes below each region

| **Characteristics** | **Region #1** | **Region #2** |
|---|---|---|
| Access to markets | **region 1.a** | **region 1.a** |
| Availability of capital | **region 1.b** | **region 1.b** |
| Entrepreneurial community | **region 1.c** | **region 1.c** |
| Skills of workforce | **region 1.d** | **region 1.d** |
| Distance to loved ones | **region 1.e** | **region 1.e** |
| Ease of doing business | **region 1.f** | **region 1.f** |
| Costs and quality of living | **region 1.g** | **region 1.g** |
| Availability of support services | **region 1.h** | **region 1.h** |
| **FORCE ANSWER**<br>**Which region would you most likely choose to establish your business?**<br>*Please select one of the two regions* | ☐ | ☐ |
| **DON'T FORCE ANSWER**<br>**Which region(s) would you actually consider in a real life setting?**<br>*Feel free to select one region, both regions or neither of the two regions.* | ☐ | ☐ |

**STORE TIME SPENT PER CHOICE TASK SET**

**INFO3**

The next part of the questionnaire focuses on incubators. Incubators (and accelerators) are programs or organizations that support the development of early-stage companies through an array of business support services and resources (e.g. office space, network, coaching, etc.)

**ASK ALL**

**Q6**

Were you familiar with the concept of 'incubators' and / or 'accelerators' prior to participating in this study'?

1. No
2. Yes

**ASK IF Q6 = 2**

**Q7**

Are you currently, or have you ever been, part of an incubator or acceleration program?

1. No
2. Yes, I am currently part of an incubator or acceleration program
3. Yes, I have been part of an incubator or acceleration program in the past

**ASK IF Q7 = 2 OR 3**

**Q8**

Can you briefly explain why you have chosen for this particular incubator or accelerator program? **OPEN**

## > Incubator part <ASK ALL

**ASK ALL**

**Q10**

What is the number of people of your business' founding team?

**OPEN NUM** people **MIN 1, MAX 10**

**ASK ALL**

**Q11**

Not counting the founding team, how many people (full time equivalent) are currently working for your business?

**OPEN NUM** people **MIN 0, MAX 99**

**ASK ALL**

**Q12**

Is the business a spin off or independent start-up? *A spin-off occurs when a division of an organization (like a company, research lab, university department etc.) becomes an independent business, whereby the founders of this new venture take assets (such as intellectual property, technology or products) from the parent organization.*

1. An independent start-up
2. A spin-off from a university or research lab
3. A spin-off from another company

98 Other, please specify: **OPEN**

97 Don't know

**ASK ALL**

**Q13**

Did your business make use of any of the following sources to raise funds? Tick all that apply:

1. Governmental subsidy
2. Bank loan
3. Crowdfunding
4. Investor
5. Friends & Family
6. Own investment

99. None of the above

**ASK ALL**

**Q14**

How much money did your business raise (in total, including your own investment)?

**SHOW IF dCOUNTRY=1, 4**

1. Less than $1,000
2. $1,000 - $9,999
3. $10,000 - $49,999
4. $50,000 – $99,000
5. $100,000 - $249,999
6. $250,000 - $499,999
7. More than $500,000

**SHOW IF dCOUNTRY=2, 3**

1. Less than £749
2. £750 – £7,499
3. £7,500 - £34,999
4. £35,000 – £74,999
5. £75,000 $ - £199,999
6. £200,000 - £349,999
7. More than £350,000

**SHOW IF dCOUNTRY=5, 6, 7, 9, 10**

1. Less than €1,000

2. €1,000 - €9,999
3. €10,000 - €49,999
4. €50,000 – €99,000
5. €100,000 $ - €249,999
6. €250,000 - €499,999
7. More than €500,000

**SHOW IF dCOUNTRY=8**

1. Less than CHF1,000
2. CHF 1,000 - CHF 9,999
3. CHF 10,000 - CHF 49,999
4. CHF 50,000 – CHF 99,000
5. CHF 100,000 $ - CHF 249,999
6. CHF 250,000 - CHF 499,999
7. More than CHF 500,000

**SHOW ALL**

97 Decline to answer

**ASK ALL**

**Q15**

Please rank the top 3 statements which best describe your ambitions for this business.

**ADD EMPTY ROW**

I want the business to…

**ITEMS**

1. …survive as long as possible as an independent firm
2. …make me a lot of money
3. …solve an important problem
4. …improve the world
5. …grow and become a large company
6. …be acquired by a larger company for a good price
7. …be in my control
8. …expand into global markets

**SCALE**

1. 1 = most important ambition
2. 2 = second most important ambition
3. 3 = third most important ambition

**ASK ALL**

**RATEMENT**

**Q16**

Please indicate on a scale from 1-5 to what extent you agree with the following statement:

**ITEM**

1. There are good conditions to start a business in the area where I live

**SCALE**

1. 1 = strongly disagree
2. 2
3. 3
4. 4
5. 5 = strongly agree

**ASK ALL**

**RATEMENT**

**Q17**

Please indicate on a scale from 1-5 to what extent you agree with the following statements:

**ITEMS**

1. Moving from place to place is exciting and fun
2. I could not be happy living in one place for the rest of my life
3. I like going places where no-one knows me
4. There is not much a future for me in my home town
5. Most of the people that I knew when I was growing up have moved away
6. I am extremely satisfied with my present home
7. My family is very close-knit and I would be unhappy if I could not see them on a regular basis
8. I have several close, life-long friends that I never want to lose
9. I love to reminisce about the places I played when I was a child

**SCALE**

1. 1 = strongly disagree
2. 2
3. 3
4. 4
5. 5 = strongly agree

**ASK ALL**

**Q18**

What is your age?

**OPEN NUM** Years **MIN 18, MAX 99**

**ASK ALL**

**Q19**

Are you…

1. Male
2. Female

**ASK ALL**

**Q23**

What is your current marital status or living arrangement?

1. Single
2. Living together with a partner
3. Married

**ASK ALL**

**Q24**

Do you have any children?

1. No
2. Yes

**ASK ALL**

**Q20**

What is the highest level of formal education you completed?

**SHOW IF dCOUNTRY=1**

1. Incomplete Secondary (high School) Education
2. Secondary (high school) Education
3. Some College, University, Technical School or Further Education
4. Vocational or Technical Degree
5. Associate's Degree
6. Bachelor's Degree
7. Master's Degree
8. Doctoral or Professional Degree (PhD, Ed.D, JD, DVM, DO, MD, DDS, or similar)

**SHOW IF dCOUNTRY=2**

9. Incomplete Secondary Education (Below GC SE / O Level)
10. Secondary Education Completed (GCSE / O Level / CSE or equivalent)
11. Secondary Education Completed (A Level or equivalent)
12. Some Vocational or Technical Qualifications
13. Vocational or Technical Qualifications Completed (e.g. HND, NVQ)
14. University Education Completed (First Degree e.g. BA, BSc)
15. Postgraduate Education Completed (e.g. Masters)
16. Doctorate, Post-doctorate or equivalent (Higher Degree)

**SHOW IF dCOUNTRY=3**

17. Incomplete Secondary Education
18. Secondary Education Completed
19. Some University or Vocational Certification
20. Vocational or Professional Certification Completed
21. University Education Completed
22. Postgraduate Education Completed
23. Doctorate, Post-doctorate or equivalent Completed

**SHOW IF dCOUNTRY=4**

24. Junior High or Middle School
25. Some High School, Secondary School/A-Levels
26. High School Diploma, Secondary School/A-Levels Graduate
27. Some College, University, Technical School or Further Education
28. Undergraduate, University Degree
29. Some Postgraduate
30. Graduate/Post Graduate Degree

**SHOW IF dCOUNTRY=5**

31. Incomplete Secondary Education
32. Secondary Education Completed (Baccalauréat or equivalent)
33. Some University or Vocational Certification
34. Vocational or Professional Certification Completed (BTS, DUT or equivalent)
35. University Education Completed (Bac+3)
36. Postgraduate Education Completed (Bac+5: Master, Engineering Degree or equivalent)
37. Doctorate, Post-doctorate or equivalent (Bac +8)

**SHOW IF dCOUNTRY=6**

38. No academic qualifications
39. Secondary school (very low qualification)
40. O-Levels / Secondary school (medium qualification)
41. A-Levels / International Baccalaureate / Higher secondary education
42. Vocational school / Apprenticeship
43. Specialised secondary school / Technical college
44. Advanced technical college / Polytechnic
45. University (Bachelor's, Master's degree or higher)

**SHOW IF dCOUNTRY=7**

46. No academic qualifications
47. Vocational secondary school (very low qualification)
48. Polytechnic
49. A-Levels
50. Specialised secondary school
51. Advanced technical college
52. Technical college
53. University

**SHOW IF dCOUNTRY=8**

54. Primary education
55. Secondary education
56. A-Levels
57. University degree or equivalent
58. Vocational diploma

**SHOW IF dCOUNTRY=9**

59. Incomplete Secondary Education
60. Secondary Education Completed
61. Some University or Vocational Certification
62. Vocational or Professional Certification Completed
63. University Education Completed
64. Postgraduate Education Completed
65. Doctorate, Post-doctorate or equivalent Completed

**SHOW IF dCOUNTRY=10**

66. General education
67. Technical education
68. Vocational education
69. University

**SHOW ALL**

97 Prefer not to answer

**ASK ALL**

**Q21**

How many years have you been working in the same industry as your business' current primary industry?

**OE NUM** years **MIN 0, MAX 99**

**ASK ALL**

**Q22**

Have you been directly involved in the starting up of other businesses?

1. No

2. Yes, in the following number of businesses: **OPEN NUM MIN 1, MAX 999**

# Appendix C - Weighing factor calculation

| Country | TEA | Population | totalTEA | TEAFraction | Sample | sample | Weight | Code | Check | Continent | TEAfracsplit | Sample | Weight | ratios |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 8,71 | 8623073 | 751069,66 | 0,01 | 37 | 0,040 | 0,280 | 22 | 10,35833 | 1 | 0,040329 | 0,0632 | 0,637639 | 2,27765 |
| Belgium | 5,4 | 11267581 | 608449,37 | 0,01 | 38 | 0,041 | 0,221 | 37 | 8,391392 | 1 | 0,032671 | 0,0650 | 0,502965 | 2,27765 |
| France | 5,34 | 67107000 | 3583513,80 | 0,05 | 125 | 0,134 | 0,395 | 3 | 49,42181 | 1 | 0,19242 | 0,2137 | 0,900525 | 2,27765 |
| Germany | 5,27 | 81197500 | 4279108,25 | 0,06 | 125 | 0,134 | 0,472 | 5 | 59,01505 | 1 | 0,22977 | 0,2137 | 1,075325 | 2,27765 |
| Ireland | 6,53 | 4635400 | 302691,62 | 0,00 | 65 | 0,070 | 0,064 | 18 | 4,174553 | 1 | 0,016253 | 0,1111 | 0,14628 | 2,27765 |
| Netherlands | 9,46 | 16928000 | 1601388,80 | 0,02 | 67 | 0,072 | 0,330 | 38 | 22,08545 | 1 | 0,085988 | 0,1145 | 0,75079 | 2,27765 |
| Switzerland | 7,12 | 8279700 | 589514,64 | 0,01 | 24 | 0,026 | 0,339 | 30 | 8,130254 | 1 | 0,031654 | 0,0410 | 0,771578 | 2,27765 |
| United Kingdom | 10,66 | 64800000 | 6907680,00 | 0,10 | 104 | 0,111 | 0,916 | 1 | 95,26684 | 1 | 0,370914 | 0,1778 | 2,08639 | 2,27765 |
| USA | 13,81 | 322210000 | 44497201,00 | 0,66 | 241 | 0,258 | 2,546 | 2 | 613,6804 | 2 | 0,904925 | 0,6886 | 1,314206 | 0,516105 |
| Canada | 13,04 | 35851774 | 4675071,33 | 0,07 | 109 | 0,117 | 0,592 | 32 | 64,47595 | 2 | 0,095075 | 0,3114 | 0,305288 | 0,516105 |
| **Total** | | 620900028 | 67795688,47 | 1,00 | 935 | 1,00 | 0,615 | | 935 | | | | | |
| **Total Europe** | | | 18623416,14 | | | | | | | | | | | |
| **Total America** | | | 49172272,33 | | | | | | | | | | | |

# Appendix D - Covariates

## Appendix D.1 - Operationalisation table of covariates

| | Variable | Indicator | Calculation of scores | Measurement |
|---|---|---|---|---|
| 1 | Founding team | Number of people part of the founding team of the start-up | 1 – 10 | Continuous |
| 2 | Age | Age of the entrepreneur | 18 - 99 | Continuous |
| 3 | Gender | Gender of the entrepreneur | 0. Male<br>1. Female | Nominal |
| 4 | Marital status | Marital status of entrepreneur | 1. Single<br>2. Living together with a partner<br>3. Married | Nominal |
| 5 | Children | Whether the entrepreneur has children | 1. No<br>0. Yes | Nominal |
| 6 | Industry experience | Years entrepreneur worked in the same industry as start-up | Years of experience of entrepreneur in the industry | Continuous |
| 7 | Start-up experience | Whether the entrepreneur has experience with launching start-ups | 1. No<br>2. Yes | Nominal |
| 8 | Adventurous | Adventurous character of the entrepreneur | 5-point Likert-scale (5 questions) | Ordinal |
| 9 | Activities | Number of activities performed during start-up | 0 - 12 | Ordinal |
| 10 | Nascent | Months paid salaries to founders and/or employees of start-up | 1. More than 2 years (non-nascent)<br>2. Less than 3 months (nascent) | Nominal |
| 11 | Industry | Industry category start-up operates in | 1. Low-tech<br>2. Medium-tech<br>3. High-tech | Nominal |
| 12 | Relocate considerate | Are you currently considering to relocate your business to another region? | 1. Yes<br>2. No | Nominal |

## Appendix D.2 - Construct of covariates Activities and Adventurous

| Indicator | Latent construct |
|---|---|
| *In the past 5 years, in which of the following activities have you engaged during the development of your business?* | |
| Formally registering the business | Activities performed |
| Preparing a written business plan | |
| Organizing a start-up team | |
| Devoting yourself full time to the business (more than 35 hours a week) | |
| Developing a proof of concept or working prototype | |
| Applying for a patent / copyright / trademark | |
| Defining market opportunities | |
| Hiring employees | |
| Asking financial institutions or other people for funds | |
| Receiving money from the sales of goods or services | |
| Purchasing materials, equipment, facilities, or other tangible goods for | |
| Discussing the new business' product or service with potential | |
| *Please indicate on a scale from 1-5 to what extent you agree with the* | |
| Moving from place to place is exciting and fun | Adventurous |
| I could not be happy living in one place for the rest of my life | |
| I like going places where no-one knows me | |
| There is not much a future for me in my home town | |
| Most of the people I knew when I was growing up have moved away | |

## Appendix D.3 – Division of industries

| Industry | Frequency | Percent | Code | Technology level |
|---|---|---|---|---|
| 1. Aerospace | 14 | 1.5 | 3 | High-tech |
| 2. Artificial Intelligence | 44 | 4.7 | 3 | High-tech |
| 3. Basic metals | 19 | 2.0 | 2 | Medium-tech |
| 4. Biotechnology & Pharmaceuticals | 28 | 3.0 | 3 | High-tech |
| 5. Chemistry | 25 | 2.7 | 3 | High-tech |
| 6. Clean technology | 78 | 8.3 | 3 | High-tech |
| 7. Coke and petroleum products | 4 | .4 | 2 | Medium-tech |
| 8. Electrical engineering & equipment | 44 | 4.7 | 3 | High-tech |
| 9. Energy | 37 | 4.0 | 3 | High-tech |
| 10. Fabricated metal products | 7 | .7 | 2 | Medium-tech |
| 11. Functional or processed food | 22 | 2.4 | 2 | Medium-tech |
| 12. ICT & Computers | 135 | 14.4 | 1 | Low-tech |
| 13. Information systems | 123 | 13.2 | 1 | Low-tech |
| 14. Machinery | 15 | 1.6 | 2 | Medium-tech |
| 15. Medical & dental instruments | 16 | 1.7 | 3 | High-tech |
| 16. Motor vehicles | 23 | 2.5 | 2 | Medium-tech |
| 17. Nanotechnology | 9 | 1.0 | 3 | High-tech |
| 18. Nuclear physics | 0 | 0.0 | . | . |
| 19. Optical products | 10 | 1.1 | 3 | High-tech |
| 20. Other non-metallic mineral products | 1 | .1 | 2 | Medium-tech |
| 21. Photonics | 3 | .3 | 2 | Medium-tech |
| 22. Repair & installation machinery | 14 | 1.5 | 1 | Low-tech |
| 23. Reproduction recorded media | 12 | 1.3 | 1 | Low-tech |
| 24. Robotics | 19 | 2.0 | 3 | High-tech |
| 25. Rubber and plastic products | 9 | 1.0 | 2 | Medium-tech |
| 26. Ships and boats | 4 | .4 | 2 | Medium-tech |
| 27. Tele-communications | 38 | 4.1 | 1 | Low-tech |
| 28. Transport | 33 | 3.5 | 1 | Low-tech |
| 29. Transport equipment | 9 | 1.0 | 2 | Medium-tech |
| 30. Water | 10 | 1.1 | 2 | Medium-tech |
| 31. Weapons & ammunition | 9 | 1.0 | 2 | Medium-tech |
| 98. Other | 121 | 12.9 | . | . |
| Total | 935 | 100.0 | | |

# Appendix E - Syntax Latent Gold

```
options
  maxthreads=all;
  algorithm
    tolerance=1e-008 emtolerance=0,005 emiterations=2000 nriterations=50 ;
  startvalues
    seed=2757142

sets=50 tolerance=1e-005 iterations=50;
  bayes
    categorical=1 variances=1 latent=1 poisson=1;
  montecarlo
    seed=0 replicates=500 tolerance=1e-008;
  quadrature  nodes=10;
  missing  excludeall;
  output
    parameters=effect standarderrors probmeans=posterior profile bivariateresiduals
    predictionstatistics setprofile setprobmeans classification;

 choice = 1;
variables
  caseid id;
  choicesetid taskid ;
  dependent locpref choice;

  attribute
markets nominal,
capital nominal,
workforce nominal,
community nominal,
support nominal,
busease nominal,
distance numeric,
livingcost nominal,
livingqual nominal,
index2 nominal;

latent
    sCl nominal coding = 1,
    Class nominal 3 ;
equations
sCl <- 1;
Class <- 1;
locpref <- markets | Class + capital | Class + workforce | Class + community | Class + support + busease
| Class + distance | Class + livingcost | Class + livingqual | Class + index2;
locpref <<- sCl;
```