

Sustainable Entrepreneurship: Values, Social Networks and Spatial Concentration

ABSTRACT

This article analyses the role of values in the spatial concentration of SMEs in a low tech sector. Sustainable entrepreneurship is influenced by personal altruistic and egoistic values, while social networks influence the adoption of these values. Due to social convergence, actors in the same social network adopt similar values, which creates a higher likelihood of sustainable entrepreneurship in some networks. It is argued that physical proximity of actors in social networks facilitates spatial concentration due to a spillover effect of values. Spatial concentration is indicated using multiple spatial statistics, concluding that spatial concentration of sustainable entrepreneurship is different from spatial concentration of conventional entrepreneurship. Arguably, this difference is caused by a spatial variation of values.

Keywords:

Sustainable entrepreneurship, spatial concentration, values, quantitative

INTRODUCTION

Entrepreneurs show an increasing interest in starting a sustainable business or making their current business more sustainable. Where conventional entrepreneurs see a business opportunity, social entrepreneurs start a business with a societal goal in mind (Isaak, 2002). Ecopreneurs are entrepreneurs with a solely environmental goal in mind (Indaco-Patters, Fearon, Nolan, & Warden, 2013). In contrast to ecopreneurs and social entrepreneurs, sustainable entrepreneurs adopt both societal and environmental goals and can serve as a catalyst in the larger socio-economic transition of society towards more sustainability. They can address the market failures in conventional business entrepreneurship (Parrish & Foxon, 2009). Therefore, sustainable entrepreneurship is introduced as a means of achieving sustainable development (Gibbs, 2009).

Spence et al. (2011) found that across countries, individual values are a key variable in determining sustainable entrepreneurship. Furthermore, environmental psychology research found that values are among the main determinants of environmental behaviour itself (De Groot & Steg, 2008). However, not only personal values define an entrepreneur's purpose. Similar values, similar norms and reciprocal trust between individuals characterise social networks in which social capital is created. 'Herding' effects of social networks cause a convergence of norms, values and activities in social networks (Durlauf & Fafchamps, 2004), which indicates that networks with environmental values can become even more 'green' and can give rise to a high(er) prevalence of sustainable entrepreneurship. On the other hand, social networks that do not support sustainable values are less likely to give rise to sustainable entrepreneurship. Unsupportive social networks can be restrictive if sustainability does not conform to the norm within a network (De Vaan, 2011). Because most social networks are based on face-to-face contacts, actors in social networks are often geographically proximate (Rutten, Westlund, & Boekema, 2010). For sustainable entrepreneurship, some places contain

facilitating social capital, while other places contain restrictive social capital (Huber, 2009). This dispersion of facilitating and restricting social networks gives rise to possible differences in the spatial patterns of conventional entrepreneurship versus sustainable entrepreneurship. Our research can contribute to an understanding of which environments support sustainable entrepreneurship and can aid policy making for a more sustainable society. Understanding the (Dutch) landscape for sustainable businesses with its strengths and weaknesses can provide valuable information for policy makers, investors and future sustainable entrepreneurs.

Although sustainable entrepreneurship can be relevant in achieving sustainable development, the field of sustainable entrepreneurship is still in its infancy (Cohen & Winn, 2007). Little academic research exists on small firms and on the spatial environments of sustainable entrepreneurs (Clemens, 2006). Furthermore, research on sustainable small and medium enterprises (SMEs) has a narrow geographical scope up until now (Aykol & Leonidou, 2015). This research aims to discover the spatial concentration of sustainable entrepreneurship in the restaurant sector in the Netherlands to add to the scarce literature. It adds to current spatial concentration theories by introducing values as a potential determinant. It advances the role of social capital in spatial concentration literature, as this literature up until now mainly hasn't focussed on the individual values of entrepreneurs. This paper answers the following research question: To what extent does value-driven sustainable entrepreneurship has different spatial concentrations pattern than conventional entrepreneurship?

The following section covers sustainable entrepreneurship and the effects of values in social networks by discussing individual entrepreneurship values, by describing value mechanisms in social networks and by discussing spatial concentration caused by value spillovers. After the theory section, data and methods are discussed, after which results are shown. The final section covers discussion and conclusion.

THEORY

This research focusses on sustainable entrepreneurs and their values related to having a sustainable business. According to Schumpeter (1947), the entrepreneur does new things or does things that are already being done in a new way. A Schumpeterian entrepreneur is an innovator, who creates social value as a by-product of his or her innovation (Schumpeter, 1947). Schumpeter's view on entrepreneurship focuses on the individual. However, entrepreneurship involves more than just the entrepreneur. The presence of opportunities together with entrepreneurial persons creates entrepreneurship (Venkataraman, 1997). These opportunities can exist in the physical environment, while the entrepreneurial person is part of his or her social network. Shapero & Sokol (1982) take this further and argue that all variables shaping the entrepreneurial event are individual, social and situational. In this research, we refer specifically to the individual values of the entrepreneur, the shared values in the entrepreneur's social network and the spatial concentration of value-based entrepreneurship as the situational effect of value spillover. We propose that the interaction of values between personal, social and situational levels creates an effect of spatial concentration of sustainable entrepreneurship.

Social Networks and Social Values

In this section we argue that personal values are determinants of social networks, that the members of social networks have similar values and that social networks are spatially concentrated. Finally, we argue following this logic that values lead to the spatial concentration of value-based entrepreneurship.

Davidson & Wilklund (1997) state that cultural values and beliefs are important determinants of firm formation, of which one of the structural determinants is a large number of small firms. Values are essential in determining entrepreneurial behaviour, as they lead to a

norm (Hachavarria & Reynolds, 2009). Norms are key determinants of actual behaviour (Biel & Thøgersen, 2007).

The importance of social networks for entrepreneurship is highlighted by Saxenian (1996), who indicates that the face-to-face social interactions between and within firms and local institutions determine entrepreneurship. The social environment and its embedded networks are key in the decision to start a firm (Sternberg & Litzenberger, 2004).

Entrepreneurs can gain knowledge from other actors through processes of information sharing in social networks. This happens when actors have similar norms and values and the network facilitates trust (Durlauf & Fafchamps, 2004; Huber, 2009). When levels of trust are high and norms and values similar; social networks create social capital. Social capital generates group identity and lead to the modification of personal values, norms and preferences. ‘Herding’ effects exist, which has a converging effect on the group’s behaviour. Through this process, social capital can give rise to the modification of the behavioural intention of an individual; causing group behaviour that is different from the individual’s initial intention (Durlauf & Fafchamps, 2004).

From the social variable of entrepreneurship, a connection can be made with the situational variable. Entrepreneurial networks are a major determinant of knowledge spillovers and social capital (Huggins & Thompson, 2015). The local social interaction effect as described by Johnston, et al., (2005) indicates that values and knowledge are communicated locally, thus leading to similar behaviours locally. They use the example of local voting patterns and find that: *“Those who talk together locally, vote together”* (Johnston, Propper, Sarker, Jones, Bolster, & Burgess, 2005, p. 1458). Because interactions between people occur in the places where they are most often, emulation effects occur, where neighbours act in similar ways (Johnston et al., 2005). Thus, social networks create local variations in values.. The mechanism that actors get higher returns on investments in social

networks when the other actors are physically close facilitates this (Glaeser, Laibson, & Sacerdote, 2000), which raises the likelihood of actors in the same social networks to be located near each other. Therefore, social networks can give rise to local entrepreneurship (Westlund & Bolton, 2003). Thus, we argue that there are local differences in entrepreneurship values.

As indicated above, social capital is an important determinant for spatial concentration because actors' norms and values are spatially proximate; just like the social relations they are a product of (Rutten, et al., 2010). Social diversity (Jacobs, 1969) and cultural amenities (Porter, 2000) stimulate entrepreneurship. Social diversity and cultural amenities vary across space and are most prevalent in cities. Furthermore, small firms, such as SMEs, are likely to lower the costs for the entering of other small firms, for instance by triggering a diversity of suppliers, entrepreneurial networks, entrepreneurship culture and venture capitalists (Chinitz, 1961). There are local differences in social capital (Subramanian, Lochner, & Kawachi, 2003), therefore, some locations can be more beneficial for value-based entrepreneurship. Based on the above, we argue that there are local variations in value-based entrepreneurship.

Urbanization and localisation economies are discussed as mechanisms of local differences in entrepreneurship (Bosma, van Stel, & Suddle, 2008; Krugman, 1991). Localisation effects are likely to occur for the restaurant sector, because restaurants need to ensure maximum exposure and grouping can maximise consumer interest (McCann, 1995). Also, localization economies are especially important for new ventures (Bosma, et al., 2008). However, Brühlhart & Mathys (2008) indicate that, except for the financial sector, localization economies mainly create congestion effects rather than economic benefits. Agglomeration economies more often have positive effects (Brühlhart & Mathys, 2008). Agglomeration economies can be part of firms' concentration, because it allows firms to locate near a large

market (Porter, 2000). Because we expect restaurants to benefit from spatial concentration, we propose:

H1a: Conventional entrepreneurship in the restaurant sector is spatially concentrated

H1b: Sustainable entrepreneurship in the restaurant sector is spatially concentrated

Furthermore, knowledge spillovers in either localization or agglomeration economies might indicate spatial concentration of entrepreneurship. Based on the idea that cultural amenities partially determine clusters (Porter, 2000) and that existing knowledge can generate spillover and be used in new start-ups through social networks (Acs, Braunerhjelm, Audretsch, & Carlsson, 2009; Huggins & Thompson, 2015), we argue that emulation effects through social networks generate values to spill over between entrepreneurs in a region

Sustainable Entrepreneurship: Value-Driven Entrepreneurship

The restaurant sector provides a large sample of small firms, which creates a beneficial atmosphere for the creation of social capital (Boschma, 2005). Because social capital is a vehicle for the communication and emulation of values between entrepreneurs; the restaurant sector provides an excellent 'living laboratory'. In this section we argue that sustainable entrepreneurship is different from conventional entrepreneurship based on values and therefore the two are likely to have different geographies.

Schaltegger & Wagner (2011) classify entrepreneurship that focuses on sustainability in four categories: ecopreneurship, social entrepreneurship, institutional entrepreneurship and sustainable entrepreneurship. The explicitly environmentally acting entrepreneurs are ecopreneurs. Institutional entrepreneurs aim to contribute to changing regulatory, societal or market institutions, whereas social entrepreneurs aim to contribute to solving social problems and to add value to society. Some entrepreneurs in the sustainable restaurant sector might have similar aims as social and institutional entrepreneurs, however, the entrepreneurs with sustainability as a main goal are defined as sustainable entrepreneurs. Although Schaltegger &

Wagner (2011) define these four types of entrepreneurship as essentially different, the boundaries are fuzzy in practice. For instance, ecopreneurs often adopt sustainability goals, which indicates that they pursue social and environmental goals simultaneously (Holt, 2010). Furthermore, entrepreneurship with an environmental mission has many names in the literature, such as green-green business, environmental entrepreneurship, enviropreneurship, green entrepreneurship and eco-entrepreneurship (Holt, 2010), indicating the multiplicity of terms used to describe entrepreneurship with a sustainability goal. This research is motivated by the achievement of sustainable development, focussing hence on sustainable entrepreneurs. However, it is most likely that the results are also applicable to other types of value-based entrepreneurship.

The sustainable entrepreneur's main goal is societal transformation towards more sustainability, while making a profit is a secondary goal (Cato, Arthur, Smith, & Keenoy, 2008; Daneke, Hall, & Lenox, 2010). This focus on the altruistic goals of sustainable entrepreneurs indicates that they are different from entrepreneurs that are sustainable for other reasons. Conventional entrepreneurs can adopt sustainability goals out of cost reduction, as a marketing strategy, because of strict legislation or pushes from institutions such as NGOs (Isaak, 2002). Schick, Marxen & Freiman (2002) indicate that many firms indeed go green out of defence rather than for having green values in the first place. Consumers see existing businesses that turn green to attract customers often as 'greenwashing' businesses (Hart & Milstein, 1999). These businesses adopt a green façade without having actual commitment to green goals and green values. Hart & Milstein (1999) argue that these firms will not contribute to the large drive towards global sustainability. Because of a lack of commitment to sustainability goals, they are expected to put minimal effort in greening once a green identity has been established or switch to a less sustainable production method once that becomes more profitable. Therefore, existing firms adopting corporate social responsibility goals or

other environmental goals are not considered in this research. The focus is on the value-driven sustainable entrepreneur.

We argue that the sustainable entrepreneur is a value-driven entrepreneur because altruistic values differentiate sustainable entrepreneurs from conventional entrepreneurs. Kuckertz & Wagner (2010) indicate that the influence of a sustainable orientation on entrepreneurial intentions is an important determinant for sustainable entrepreneurship. According to Steg, Bolderdijk, Keizer, & Perlaviciute (2014), biospheric altruistic values are the largest determinant of environmental behaviour and, therefore, of sustainable entrepreneurship. Social altruistic values also positively influence environmental behaviour (Steg, et al., 2014). Furthermore, sustainable entrepreneurs across cultures are driven by values coherent with sustainable development. Even though culture and institutions differ across cultures, values appear to be a stable factor in determining sustainable entrepreneurship (Spence et al. 2011).

Nevertheless, sustainable entrepreneurship is not only based on altruistic values, as sustainable entrepreneurs need to make a profit. Although egoistic values have been found to negatively influence sustainable behaviour (Steg, et al., 2014), the sustainable entrepreneur's value set consists of egoistic as well as non-egoistic values. Kirkwood & Walton (2010) indicate that, besides green values, passion for their business and economic considerations are also important determinants for sustainable entrepreneurs. To conclude, sustainable entrepreneurs contain a unique value set consisting of altruistic and egoistic values. We propose the following hypothesis:

H2: Sustainable entrepreneurship as opposed to conventional entrepreneurship in the restaurant sector is predicted by the values of the entrepreneur

Social values, social norms and trust are determinants of social capital . Social norms play an integral role in influencing entrepreneurial start-up (Meek, et al., 2010). Because of a

social norm, members of the social network gain similar values and knowledge and undertake similar activities. Besides the positive effects of social capital on sustainable entrepreneurship, there is also a downside of social capital. There is a risk of conformity bias in tight groups, which restricts radical ideas. De Vaan (2011) indicates that, for a single business sector, the more social capital is present in a region, the less likely entrepreneurs are to start businesses in new industries unknown to that region. Due to value convergence and social norm creation in social networks, some types of business are considered legitimate, while others are not. If sustainable entrepreneurship is considered a radical action not in convergence with the social norm, there could be a lower incidence of sustainable entrepreneurship (De Vaan, 2011). An altruistic entrepreneur could, for instance, not be welcome in a network where egoistic values are more dominant.

Although spillover theory explains the spillover of knowledge in technological innovation (Acs et al., 2009), it also potentially explains the spillover of environmental values in sustainable entrepreneurship. Due to the different value sets of conventional and sustainable entrepreneurs, spatial concentration of sustainable entrepreneurship is expected to occur in different places than the spatial concentration of conventional entrepreneurship. Whereas Audretsch and Lehmann (2005) propose that new firm creation is a local endogenous response to knowledge opportunities at the local level, we argue that spatial concentration is influenced by value convergence. Therefore we propose:

H3: Concentration patterns of sustainable entrepreneurship are different than concentration patterns of conventional entrepreneurship.

DATA AND METHOD

This research uses a mixed method approach and adopts both quantitative analysis based on surveys and secondary spatial data. The survey was conducted among sustainable and conventional entrepreneurs in the restaurant sector. Subsequently, a factor analysis and

logistic regression were performed to determine the influence of the entrepreneurs' values on their prevalence to own a sustainable restaurant. To test spatial concentration of sustainable and conventional restaurants, multiple spatial estimates are performed. These spatial estimates provide the input for binary analysis, which is used to determine differences in the concentrations of sustainable and conventional restaurants. A difference in spatial concentration would be attributed to a difference in values of sustainable and conventional entrepreneurship, as argued before. The following section discusses the research context, sample and design used to determine spatial concentration for sustainable and conventional restaurants and the differences between sustainable and conventional spatial concentrations.

Research Context

The focus of this research is on SMEs in the restaurant sector. The low-tech character of sustainable restaurants is a reason for using sustainable restaurants as an indicator for spatial concentration of sustainable entrepreneurship. Sustainable restaurants, being part of the service industry, are not characterized by high-tech innovation. The lack of innovation in this sector places higher importance on values instead of technological knowledge as the product of social capital, therefore controlling for a possible effect of technological innovation on sustainable entrepreneurship concentration. Furthermore, Boschma (2005) indicates that a large sample of small firms creates a beneficial atmosphere for social capital. The restaurant sector in the Netherlands is a large sample of small firms. Sustainable restaurants cater to a number of sustainable diets with different rationales. Local, seasonal, vegetarian or vegan diets are more sustainable than the average western diet in relation to greenhouse gas emissions, overfishing, deforestation, desertification, over-fertilisation and the accompanying ocean acidification, ocean dead zones and biodiversity loss (FAO, 2006; Morawicki, 2012; Garnett, 2014). Besides these mainly environmental effects, a lower meat and dairy consumption requires less fodder inputs, leaving more agricultural land for other uses, such as

food for human consumption or biomass for biofuel production. Local food is an important contributor to food security and serves the purpose of increased food transparency for consumers. Global food chains often lack transparency, which can lead to ignorance of consumers regarding social or environmental issues caused by food production in distant areas. Consuming local food can therefore give an assurance of sustainability (Friedmann, 2007). Finally, organic food serves environmental as well as social goals of food. Organics International defines organic agriculture as "*a production system that sustains the health of soils, ecosystems and people.*" (IFOAM, 2005). Because organic food is produced without synthetic fertilizers and contributes to diversity of species, it contributes to a food system that is less sensitive to pests and other shocks. Also, it has positive effects on biodiversity (Hole, Perkins, Wilson, Alexander, Grice, & Evans, 2005). Lower sensitivity of the food system to shocks and higher biodiversity also promotes food security.

Concluding, a vegan, organic, local and seasonal diet is a more sustainable diet than the conventional Western diet, in terms of social and environmental effects. Restaurants serving local, organic, seasonal, vegan and/or vegetarian food are therefore considered more sustainable than conventional restaurants in this research. Therefore, the locations of restaurants serving mainly (over 50%) vegan, vegetarian, seasonal, local or organic food are used to determine spatial concentration of sustainable entrepreneurs in the restaurant sector. To determine whether the restaurants we classify as sustainable are motivated by their values, we have conducted a survey among a subset of these restaurants. The following chapter elaborates on the survey.

Research Design

We used a survey to determine values for sustainable entrepreneurship in the restaurant sector. We spread it among a sample of sustainable entrepreneurs and a control group. We yielded 174 valid responses. The survey uses seven variables to measure egoistic,

social and biospheric value constructs. The questions are applied to food and restaurant practice (see Appendix A for the survey). The data analysis of the survey data consists of a factor analysis and a logistic regression. A factor analysis determines whether these three values correspond with the seven variables in the primary dataset. The resulting factors are included in the logistic regression. In the binary logistic regression, the sustainability of the restaurant is the dependent variable and the entrepreneurs' values are the independent variables. The variables that are part of a factor are included as categorical variables in the regression. The binary logistic regression serves to determine which of the variables predict sustainable entrepreneurship. We used this survey to determine the motivations of the owner-managers of the sustainable restaurants. It serves to verify that the sustainable entrepreneurs we analyse are different from conventional entrepreneurs based on their values as we hypothesized in H2. Furthermore, it determines whether the entrepreneurs in our selection are serving sustainable food or are greenwashing.

To investigate whether sustainable entrepreneurship clusters differently in space than conventional entrepreneurship and hence detect differences in value spillovers, we execute a number of clustering estimates on the LISA dataset (The Dutch chamber of Commerce dataset of all businesses), which contains the data of all Dutch restaurants. Clustering analyses on the LISA data provides inputs for clustering analyses on the dataset of sustainable restaurants. The spatial analysis consists of five steps. The first four steps are performed separately on the LISA and sustainable restaurant selection, except for step two which is performed only on the LISA data due to the small sample size of the sustainable restaurant selection. The fifth step is performed on an aggregate of the LISA and sustainable restaurants selection. The next session discusses the steps for the LISA data, after which the steps for the sustainable restaurant data is discussed.

The first step for the LISA data consists of an average nearest neighbour analysis to determine whether the location of restaurants to their nearest neighbour is significantly shorter than expected, given the size of the database and the size of the Netherlands (Altman, 1992). The point data of the individual restaurants in the dataset are used for this analysis. Second, we use a global Moran's I analysis to determine incremental spatial autocorrelation; the distance at which spatial concentration in the restaurant sector is most pronounced (Moran, 1950). The results from this estimate are used to determine the distance bands for the following analyses. For the third step, we aggregate the point data. The count of the number of points per neighbourhood is generated, because polygon data is required for the spatial autocorrelation test. We calculate a global Moran's I estimate of spatial autocorrelation in order to determine whether the spatial data is randomly or non-randomly distributed. A non-random distribution is an indication of dispersion or clustering. For the fourth step, we determine the locations of clusters using both an Anselin Local Moran's I analysis for clusters (Anselin, 1995) and outliers and a Getis-Ord Gi Hotspot analysis on the neighbourhood level (Ord & Getis, 1995). The fourth step is used as an input for the fifth step. Before discussing the final and fifth step, the analyses on the sustainable restaurant dataset are described.

The analyses that are performed on the LISA data in step three and four are altered to be appropriate for the small sample of the sustainable restaurant data. In step 3, we use Ripley's K to determine spatial concentration instead of the Moran's I estimate on spatial autocorrelation that is used for the LISA dataset. The Ripley's K method uses point data and computes distance bands around each point (Getis, 1984). This distance band is based on the global Moran's I analysis in step two. For each distance band, the points within the band are counted and distributed randomly across the distance band. Then, the expected mean distance based on this random distribution is computed. After that, the observed mean distances are computed. Ripley's K does so for each point in the dataset, for multiple distance bands. The

observed mean and expected mean distances are graphically displayed. A confidence envelope is then computed by randomly distributing the number of points in the dataset over the given space 99 times, after which the Ripley's K analysis is repeated. This method is used because of the small sample of the sustainable restaurant selection. Aggregation on the polygon level, which is required for a Moran's I, is therefore inappropriate. The advantage of Ripley's K compared to the Moran's I is that it does not lose information to aggregation. The disadvantage, however, is that it cannot correct for population density when point data is used. Because the analysis on sustainable restaurants cannot be corrected for population density, the LISA analysis is also not corrected for population density.

For step four of the sustainable restaurant analysis, we used an optimized hot spot analysis. This method automatically aggregates the data on the optimal scale for analysis. It calculates a fishnet polygon that covers the dataset. Based on the counts per cell, the analysis is performed in the same way as the hotspot analysis on the LISA dataset. Because a municipality level aggregation of the dataset is not possible due to a low number of cases and a province level aggregation is not suited for the hotspot analysis due to a low number of provinces, the fishnet polygon is used instead of formal geographical regions.

For the fifth and final step, the data generated by the sustainable and LISA cluster analyses are aggregated into a non-spatial dataset. To determine whether the results from the cluster analyses for LISA and sustainable restaurant data are significantly different, a binary nonparametric analysis is performed in SPSS. We determined for all restaurants in the dataset whether they are located inside a sustainable cluster, a general restaurant cluster, both clusters or none. Based on this binary dataset derived from the cluster locations, a McNemar's test is executed (McNemar, 1947). This test, when significant, indicates whether there is a significant difference between the groups of restaurants, based on their prevalence in a sustainable or general cluster. This gives an indication of the extent to which the clusters are

in the same location. If many restaurants are in both the sustainable and general cluster, this indicates similarity in location. If many restaurants are found in one cluster only, it indicates dissimilarity in location.

The same binary data is used to determine whether the presence of a general restaurant cluster influences the prevalence of a sustainable cluster. This influence could occur when localization economies are prevalent, as follows from McCann (1995) and Bosma et al. (2008). We test this with a chi-square statistic and a binary logistic regression for the direction of the effect.

Sample

The data used in this research consists of the locations of all restaurants in the Netherlands, including sustainable restaurants. These locations are part of the LISA-dataset by the Dutch Chamber of Commerce, containing all businesses in the Netherlands in 2013. Whether restaurants are sustainable is determined by their listings on websites for communities of consumers with sustainable diets. Restaurants serving at least 50% vegan, vegetarian and organic food are selected. Restaurants serving over 50% local and seasonal food are scarce, due to limited availability of local and seasonal products all year round. Therefore, restaurants that are only local or seasonal are not included in the sustainable restaurant selection, because they also have to have 50% vegetarian, vegan or organic menus. The final selection of sustainable restaurants in the Netherlands consists of 591 firms. The control group consist of the 15081 conventional restaurants in the Netherlands, including the sustainable restaurant selection.

The LISA data is highly concentrated, when not corrected for the population in a region. The nearest neighbour analysis on the LISA dataset indicates spatial concentration, $p < .001$. The sustainable restaurant data shows a pattern of concentration as well $p < .001$.

Based on the nearest neighbour analysis, we expect patterns of spatial concentration for the entire restaurant sector and the subset of sustainable restaurants.

After establishing spatial concentration with the nearest neighbour analysis, the incremental spatial autocorrelation analysis indicates at which distance spatial concentration or dispersion is most or least dense. The analysis is highly significant with a peak at five kilometres $p < .001$ (see figure 1). There is a trend break again at 15 kilometres, from which the decline of spatial autocorrelation is less steep. This could indicate the difference between walking or cycling distance and driving distance. In the Netherlands, it is common to walk or cycle distances up to five kilometres. The car is a more likely mode of transportation after fifteen kilometres. When travelling by car, an extra kilometre is less of a hurdle than when travelling by bike or foot. The lowest dip in the spatial autocorrelation is at a distance of 50 kilometres.

Insert Figure 1 about here

Limitations

Multiple spatial analyses are executed as a means of triangulation of methods (Downward & Mearman, 2007) and to reduce technique bias. Although there is a difference in methodology between the concentration tests for the conventional data and the sustainable restaurants selection, this is expected to be minimal, since both Ripleys K and Moran's I are based on Moran's method (Getis, 1984).

Another limitation is the dependency of the sample on the level of scale. We have performed multiple analyses on multiple levels of scale. These analyses yield somewhat different results. Especially when the using larger geographic areas such as provinces, significant effect were not found or less obvious. We chose a level of scale that is optimal

based on the size of the Netherlands, the sector and the number of observations in our sample. We recognize, however, that different scale levels yield different results.

RESULTS

The distance bands for the spatial concentration analysis are determined by the results from the incremental spatial autocorrelation analysis in the previous section (see figure 1). As the peak distance for spatial concentration in the LISA dataset is 5 kilometres, this is determined as the distance increment. Because the incremental spatial autocorrelation analysis is found to decrease until it is lowest at 50 kilometres, 50 kilometres is determined to be the last distance band.

The Moran's I indicates spatial concentration for the uncorrected LISA dataset, $I = .15$, $p < .001$, while Ripley's K also indicates spatial concentration for the sustainable restaurant sector, as can be seen in figure 2, $p < .001$. The observed K statistic is far outside the 99% confidence envelope indicated by the dotted line. Spatial concentration in the sustainable restaurant sector reaches its peak at five kilometres, which indicates that spatial concentration in the sustainable restaurant sector occurs at the same level as conventional restaurants. Ripley's k still indicates spatial concentration at 50 kilometres, although this decreases from its peak at five kilometres. That the peak is at five kilometres could be because restaurants co-locate to attract a larger market, as indicated by McCann (1995), because the browsing consumer would not travel far to view all the dining opportunities. Spatial concentration is indicated by the nearest neighbour analysis in the data description and is confirmed by the Ripley's K statistic. Based on these analysis, both H1a and H1b are accepted: Both sustainable and conventional restaurants are spatially concentrated.

Before reporting the results from the spatial analyses, we briefly report the results from the value survey. This survey yielded 174 valid responses and was intended to determine whether

values determine sustainable entrepreneurship in the restaurant sector. The survey was designed so that several values would yield a single factor. We yielded two factors: an altruistic and an egoistic factor. Both factors had a significant effect on whether a restaurant serves sustainable food ($p > 0.05$, Nagelkerke $R^2 = .20$). Appendix B provides the additional statistical analysis. Therefore, we support H2:

Sustainable entrepreneurship as opposed to conventional entrepreneurship in the restaurant sector is predicted by the values of the entrepreneur

Based on the previously executed spatial analysis, the McNemar's test is used next to determine whether due to the physical proximity of actors in social networks, sustainable entrepreneurship tends to concentrate. Mapping the spatial concentration for the LISA dataset uncovers a pattern of spatial concentration in the larger urban areas of the Netherlands (see figure 3). In the Dutch sustainable restaurant sector, there is only one large concentration for the entire country, spanning the area of the 4 largest cities in the Netherlands: Amsterdam, Rotterdam, the Hague and Utrecht (see figure 3). This could be due to agglomeration economies as proposed by Brühlhart & Mathys (2008). This area is the most densely populated part of the Netherlands and both analyses are not corrected for population density. There is a difference to be seen in figure 3 between sustainable and conventional clusters, however, as there is only one spatial concentration of sustainable restaurants, although there are multiple conventional restaurant clusters outside of the Netherlands' largest urban area (see figure 3).

Insert Figure 2 about here

Insert Figure 3 about here

The percentages of sustainable restaurants in table 1 are based on the maps in the previous section. The maps show that sustainable restaurants occur more often in both

sustainable and conventional clusters. This indicates that sustainable restaurants have a higher propensity to cluster and that spatial concentration of sustainable restaurants is positively influenced by spatial concentration of all restaurants (sustainable and conventional), as in the literature on localization economies (McCann, 1995; Bosma et al., 2008). The following section continues on this relation between sustainable and conventional clusters.

Insert Table 1 about here

The last step of the data analysis consists of a McNemar's test, a chi square statistic and a binary logistic regression to determine whether the sustainable cluster and conventional cluster contain the same restaurants. It can be seen from table 2 that most restaurants are either not in a cluster at all, or in both clusters at the same time. However, 19,3% of the restaurants is either only in a sustainable or only in a conventional cluster. This indicates a difference in location for the green and grey cluster.

Insert Table 2 about here

The test results for the McNemar's test indicate that the locations of the restaurants in the sustainable cluster and the locations of the restaurants in the conventional cluster are different from each other, $\chi^2(1) = 475.42$ $p < .001$. Because the locations of restaurants in the sustainable and conventional cluster are essentially different, H3 is supported:

Concentration patterns of sustainable entrepreneurship are different than concentration patterns of conventional entrepreneurship.

A chi square statistic is performed to determine whether the presence of a conventional cluster influences the likelihood of a sustainable cluster. The chi-square statistic indicates that the locations of the sustainable and conventional cluster are not independent. There is a

significant association between the clusters, $\chi^2(1) = 6300$ $p < .001$. A binary logistic regression indicates that the effect of the conventional restaurant cluster on the sustainable restaurant cluster is positive, $b = 2.156$ Nagelkerke $R^2 = .168$ $p < .001$. Because the conventional cluster has a significant effect on the sustainable cluster, it is found that the spatial concentration of sustainable SMEs occurs in areas with a large share of similar businesses, which indicates localization effects.

DISCUSSION & CONCLUSION

This article considers whether value-based sustainable entrepreneurship has a different spatial pattern than conventional entrepreneurship. We found that sustainable entrepreneurship is different from conventional entrepreneurship, because it is determined by biospheric and social values. Furthermore, this paper adds to spatial concentration theories by proposing entrepreneurship values as potential factors for spatial concentration. Our results indicate that localization economies are found to be present and an extra dimension is added by indicating a difference in spatial concentration based on entrepreneurship values. Therefore, the main contribution of this paper to the literature is the indication of a difference in spatial clustering of entrepreneurship based on entrepreneurship values. Furthermore, this research can specifically add to the literature on sustainable entrepreneurship by adding a spatial-psychological dimension.

We indicate with a Moran's I analysis for conventional restaurants, a Ripley's K analysis for sustainable restaurants and a nearest neighbour analysis for both types of restaurants that spatial concentration of entrepreneurship occurs in both the conventional and sustainable restaurant sector. An incremental spatial autocorrelation analysis shows that the largest effect occurs within a distance of five kilometres, which is walking or cycling distance in the Netherlands. Our analysis shows that restaurants in the sustainable restaurant cluster

and the restaurants in the conventional restaurants cluster do not belong to the same population of restaurants. Thus, the geographical locations of the conventional and sustainable clusters are not the same. They do, however, have an influence on each other. A binary logistic regression shows that spatial concentration of conventional restaurants has an effect on the spatial concentration of sustainable restaurants. This implies that localization effects are in place and that entrepreneurial values might provide a new dimension to the localization effect. Further research can determine whether the difference in spatial concentration between the conventional and sustainable clusters is due to the effect of values. Therefore, it can be concluded that sustainable SMEs in the restaurant sector tend to concentrate spatially and that they concentrate in different places than conventional SMEs.

Although the analysis is limited due to the small size of the sustainable restaurant data, it is a suitable sector for an analysis on sustainable entrepreneurship. Larger sample sizes of sustainable entrepreneurs might not occur in other sectors. However, it could be worthwhile to repeat this analysis on a sample of sustainable entrepreneurs in a high-tech sector. The findings from this research could be transferable to low-tech industries, especially in the service sector. However, in high-tech industries, the spillover of knowledge that gives rise to technological innovation needs to be taken into account (Huggins & Thompson, 2015). The effect of personal and social values could be different than in a low tech industry, because this technological knowledge spillover is the product of social capital and social networks as well. In the high-tech sector, the interaction between value convergence and information sharing could possibly give rise to sustainable technological innovation. Therefore, it would be interesting for future research to address the interaction of value-based entrepreneurs as described in this research with knowledge spillover for technological innovation.

Furthermore, survivor bias could be in place due to a possible difference in survival rates of sustainable and conventional restaurants. On the one hand, this is not expected to have

been problematic for the analysis, as the proposed value spillover theory can both affect startups and performance of existing firms. On the other hand, this makes it unclear whether a supportive social network for sustainable entrepreneurship leads to the startup of more sustainable businesses or the survival of more sustainable businesses as opposed to locations without a supportive social network.

Finally, the distance at which spatial concentration occurs most prominently in the Netherlands in the restaurant sector is found to be five kilometres. This could be because cycling and walking are popular modes of transportation in the Netherlands (Susile & Maat, 2007). Therefore, it would be interesting to repeat this analysis for countries where different modes of transportation are preferred.

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FIGURE 1

LISA dataset incremental spatial autocorrelation.

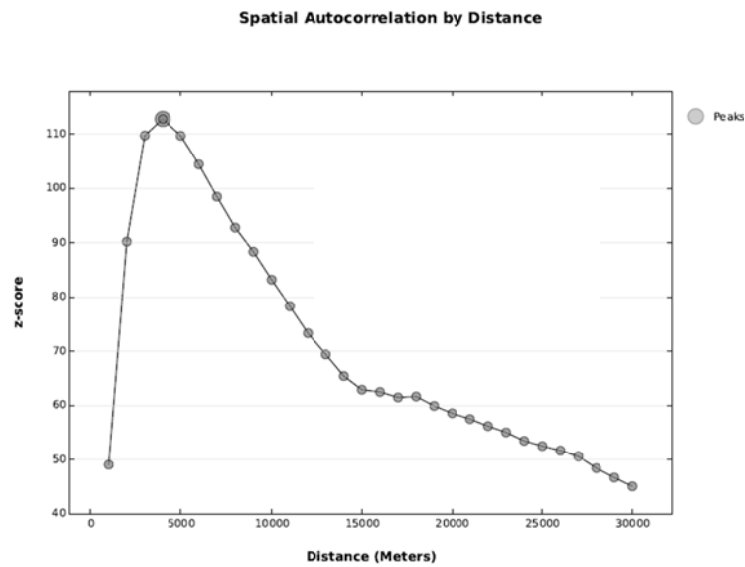


FIGURE 2

Ripley's K for sustainable restaurants at the 99% confidence level

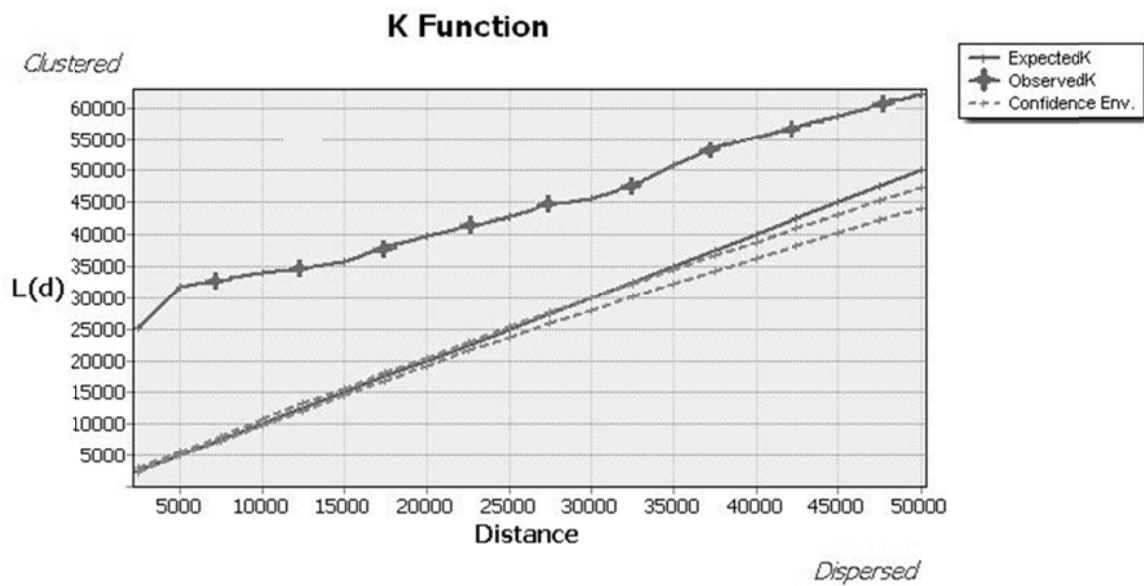


FIGURE 3

Spatial concentrations of restaurants in the Netherlands.

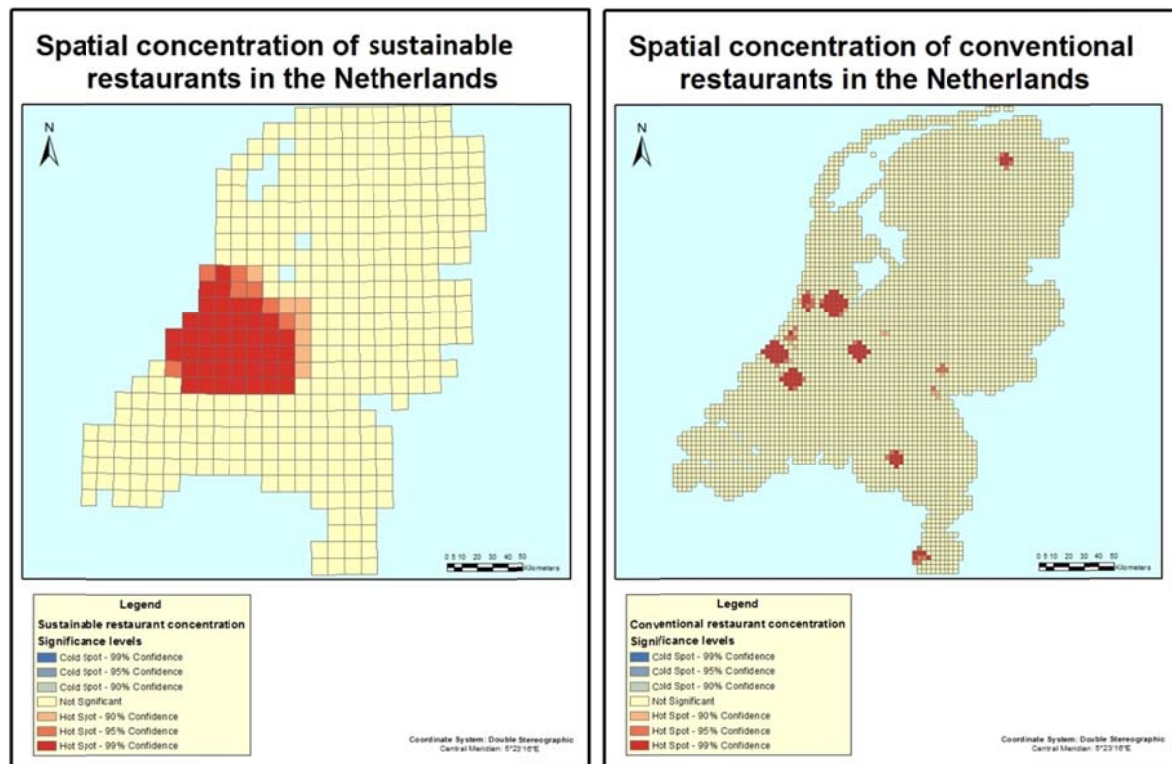


TABLE 1
Description of variables used in the chi-square test

<i>Variable</i>	<i>Description</i>	<i>% yes</i>	<i>% green</i>	<i>% general</i>
SustYesNo	The restaurant serves sustainable food	0.02		
ClusterGreen	The restaurant is located in a sustainable cluster	38.1%	62.0%	37.6%
ClusterGrey	The restaurant is located in a general cluster	35.0%	53.7%	34.6%

TABLE 2

Description of variables used in the McNemar's test

		<i>ClusterGrey</i>	
		0 (No)	1 (Yes)
ClusterGreen	0 (No)	14511 (51,5%)	2567 (9,1%)
	1 (Yes)	4385 (15,6%)	6702 (23,8%)

Introductie

Welkom bij deze enquête over ondernemerschap in de restaurant sector. Het invullen van deze enquête kost u ongeveer 5 minuten. De vragenlijst bevat vragen over uw persoonskenmerken en vragen over het restaurant, zoals locatie, cuisine en het aantal werknemers. Het doel van dit onderzoek is om te bepalen wat voor link er is tussen ondernemerschap in de restaurant sector en locatie. De mate waarin restaurants zich bij elkaar in de buurt vestigen is een voorbeeld van deze link.

Er wordt vertrouwelijk omgegaan met de gegevens die u verstrekt in deze enquête. De locatie van uw restaurant kan niet teruggeleid worden naar uw gegevens. Heeft u vragen over het onderzoek of over deze enquête, dan kunt u contact opnemen met Margo Enthoven via M.P.M.Enthoven@student.rug.nl.

Verder zou ik u willen vragen of u de enquête wilt verspreiden onder andere ondernemers in de restaurant sector. Bij voorbaat hartelijk bedankt!

U kunt hieronder op het pijltje klikken om door te gaan naar de vragenlijst.

Persoonlijke informatie

Wat is uw geslacht?

☐ Man

☐ Vrouw

☐ Anders, namelijk

Wat is uw leeftijd?

Wat is uw nationaliteit?

☐ Nederlands Anders,

☐ namelijk

Hoe zou u uw etnische achtergrond beschrijven?

Wat is uw hoogst voltooide opleiding?

☐ Lagere school LBO,

☐ VMBO1-3 VMBO4,

☐ MAVO HAVO, VWO

☐ MBO

☐ HBO WO

☐ Anders, namelijk

☐

In welke categorie ligt uw persoonlijke jaarinkomen?

☐ Tot €10.000

☐ €10.000 - €20.000

☐ €20.000 - €30.000

☐ €30.000 - €40.000

☐ €40.000 - €50.000

☐ €50.000 of meer

Wat is uw relationele status?

- ☐ Getrouwd
- ☐ Verloofd
- ☐ Samenwonend
- ☐ LAT-relatie
- ☐ Single
- ☐ Anders, namelijk

Heeft u kinderen?

- ☐ Ja, namelijk (aantal)
- ☐ Nee

Beschouwt u zichzelf als een gezond persoon?

- | | | | | | |
|------------|-------------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|
| | Helemaal
niet gezond | Niet
gezond | Niet
gezond,
niet
ongezond | Gezond | Heel erg
gezond |
| Gezondheid | ☐ | ☐ | ☐ | ☐ | ☐ |

Restaurantinformatie

Bent u de eigenaar van het restaurant?

- ☐ Ja
- ☐ Het restaurant is van een familielid
- ☐ Nee

Bent u het restaurant begonnen?

- ☐ Ja

☐ Mijn familie is het restaurant begonnen

☐ Nee

Op welke leeftijd begon u het restaurant/ begon u met werken in het restaurant?

Bent u de eigenaar van het gebouw waarin het restaurant is gevestigd?

☐ Ja

☐ Het gebouw is van familie

☐ Nee

Welke rol vervult u vooral in het restaurant?

☐ Manager Kok

☐ Bediening

☐ Gastheer/vrouw

☐ Verhuurder van het pand

☐ Anders, namelijk

Hoe belangrijk waren de onderstaande redenen voor u om dit restaurant te beginnen/ over te nemen?

	helemaal niet belangrijk	niet belangrijk	neutraal	belangrijk	erg belangrijk
Ik hou van het werken in een restaurant	☐	☐	☐	☐	☐
Ik hou van het managen van een restaurant	☐	☐	☐	☐	☐
Ik zag een zakelijke kans	☐	☐	☐	☐	☐

Ik wil mensen stimuleren om anders te eten	☐	☐	☐	☐	☐
Ik wil iets doen voor het milieu	☐	☐	☐	☐	☐
Ik wil iets doen voor de maatschappij	☐	☐	☐	☐	☐
Ik wil iets doen voor andere mensen	☐	☐	☐	☐	☐

Hoe zou u de cuisine van het restaurant beschrijven? (maximaal 5 woorden)

Hoeveel werknemers heeft het restaurant?

Postcode

Wat is de zescijferige postcode van uw restaurant?

☐ De postcode van mijn restaurant is:

☐ Daar geef ik liever geen antwoord op

Locatie

In welke gemeente is uw restaurant gevestigd?

In wat voor gebied is uw restaurant gevestigd?

☐ Stad met meer dan 100.000 inwoners

- ☐ Stad met minder dan 100.000 inwoners
- ☐ Stedelijk gebied, maar niet in een stad
- ☐ In een dorp
- ☐ Op het platteland
- ☐ In een natuurlijke omgeving/natuurgebied
- ☐ Anders, namelijk

Restaurant in de regio

Heeft u het gevoel dat u onderdeel bent van de plaats waar uw restaurant gevestigd is? (meerdere antwoorden mogelijk)

- ☐ Ja, van de regio
- ☐ Ja, van de stad
- ☐ Ja, van de buurt
- ☐ Ja, van de wijk
- ☐ Nee

Heeft u het gevoel dat u onderdeel bent van een gemeenschap van restaurant eigenaren?

- ☐ Ja
- ☐ Een beetje
- ☐ Nee

Waar komt het merendeel van uw gasten vandaan?

- ☐ Vooral uit de wijk
- ☐ Vooral uit de buurt
- ☐ Vooral uit mijn stad/dorp
- ☐ Vooral uit de regio
- ☐ Vooral uit de provincie

☐ Uit het hele land

☐ Weet ik niet

Heeft u het gevoel dat er competitie is met andere restaurants in uw omgeving?

	Helemaal niet	Een beetje	Veel competitie	Heel veel competitie
Competitie	☐	☐	☐	☐

Serveert u duurzaam voedsel?

Serveert u duurzaam voedsel?

☐ Ja

☐ Nee

☐ Weet ik niet

Duurzaamheid

Wat beschouwt u als duurzaam voedsel? (meerdere antwoorden mogelijk)

☐ Biologisch

☐ Lokaal

☐ Seizoensgebonden

☐ Vegetarisch

☐ Veganistisch

☐ Verpakkingsvrij

☐ Diervriendelijk

☐ Fairtrade

☐ Anders, namelijk

☐ Weet ik niet

Hoeveel procent van het voedsel wat u serveert is naar schatting:

0 10 20 30 40 50 60 70 80 90 100

Biologisch

Lokaal

Seizoensgebonden

Vegetarisch

Veganistisch

Waar heeft u uw kennis over duurzaam voedsel opgedaan?

Heeft u het gevoel dat u onderdeel bent van een gemeenschap van duurzame ondernemers?

- ☐ Ja
- ☐ Een beetje
- ☐ Nee

Heeft u het gevoel dat u onderdeel bent van een gemeenschap van duurzame restauranthouders?

- ☐ Ja
- ☐ Een beetje
- ☐ Nee

Afsluiting

Zou u bereid zijn om mee te doen aan een interview van 15-30 minuten?

☐ Ja (vul hier uw e-mail adres in)

☐ Nee

Wilt u op de hoogte blijven over het onderzoek? Vul dan hier uw e-mailadres in

Appendix B: Survey analysis

Item	Rotated Factor Loadings	
	Altruistic: adding value	Egoistic: Passion for restaurant business
MotiWork	-.01	.66
MotiManage	-.04	.65
MotiBusi	-.05	.29
MotiEatDiff	.52	-.10
MotiEnv	.70	-.08
MotiSociety	.71	.01
MotiPeople	.52	.01
α	.73	.71

*N=174. Factor loadings over .40 appear in bold

Our factor analysis (see table above) yields two factors that we call egoistic and altruistic factors. Cronbach's alpha is over .71 for the egoistic factor and .73 for the altruistic factor. This indicates that the factor analysis is reliable. There were no issues with the reproduced residuals for this analysis and the KMO-measure of sampling adequacy was 0.65. This is a moderate score, but not below the minimum acceptability of 0.5 and most likely due to the small number of cases. The table below reports the logistic regression, in which both factors are significant predictors.

	z	S.E.	95% Confidence Interval			P < z
			Lower	Odds	Upper	
SustYesNo						
Altruistic	3.89	1.77	2.12	4.55	9.77	0.00***
Egoistic	2.31	.67	1.12	2.10	3.93	0.02**
MotiBusi	-1.02	.32	.18	.55	1.73	0.31
EduCorr	0.35	.37	.58	1.12	2.17	0.72
AgeBusi	0.68	.03	.96	1.02	1.08	0.50
FirmSize	-1.74	.21	.19	.46	1.10	0.08*
AgePers	-0.65	.03	.93	.98	1.04	0.52
Compete	-1.30	.19	.40	.70	1.20	0.13
KidsYesNo	0.06	.52	.38	1.02	2.75	0.95
Sex	0.25	.58	.42	1.13	3.07	0.80
Constant	2.67	43.59899	2.53	33.21	435.21	0.01**
Log likelihood	-64.72					
Chi²	32.77					
Model significance	.00					
Nagelkerke R²	.20					
McFadden's R²	.20					
N	174					

*P < 0.1 **P < 0.05 ***P < 0.01