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SPECIAL ISSUE PAPER

The mental maps of Italian, German and Dutch entrepreneurs: a comparative perspective

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Abstract

This paper compares and discusses the results of the research on mental maps of entrepreneurs conducted in three countries: Italy, Germany and the Netherlands. The stated locational preferences of Italian, German and Dutch entrepreneurs and their underlying explanatory factors are analysed and compared, using both qualitative and quantitative methods. The analysis points out that the three countries have some common characteristics regarding the patterns and the explanatory factors of the mental maps of their entrepreneurs. Examples are the centre–periphery dichotomy and the relevance of accessibility. One of the differences between the countries is the preference for large agglomerations that appears in the map image for Germany, a pattern that is less clear in the map image for Italy and the Netherlands. In some important respects, the results for Italy are different from those for the other two countries, as the North–South divide and organised crime apparently play an important role in the mental maps of entrepreneurs in this country.

JEL Classification R12 · R30

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1 Introduction

Analysis of the mental maps of entrepreneurs is an important tool in the research of the attractiveness of places for investments and firm migration.

The concept of the mental map, that gained currency through the work of, amongst others, Gould and White (1974), is one of the core concepts in behavioural geography. The research in this field covers a wide range of studies. Mental maps have been used to study the spatial image that children and adults have of their own surroundings, and to analyse how they orient themselves in space. Other studies of mental maps have focused on residential preferences in various countries, often with students as a research group.

There is relatively little research on the mental maps of entrepreneurs. An exception is the line of research that was started in 1983 by Pellenbarg and Meester, studying the locational preferences of entrepreneurs. Surveys at the national scale were conducted in the Netherlands (Meester and Pellenbarg 1986, 2006; Meester 2004; Pellenbarg 2012), Germany (Meester 2004) and Italy (Musolino and Senn 2013; Musolino 2015, 2018).[1] These studies all follow the same methodological approach. Each of them is based on a survey amongst entrepreneurs in which the key element is a map of the country, showing the locations to be rated by the respondents. Based on the results of the survey, the patterns of the locational preferences are analysed, and the factors that explain them.

The data on stated locational preferences of entrepreneurs that were collected in these studies were used mainly for analyses focused on the country in which the survey was carried out. The objective of the present paper is to gain more knowledge about the general validity of locational preferences of entrepreneurs in different countries.[2] The more mental maps follow common patterns and are explained by the same factors, the more robust and universal empirical evidence we have on the stated locational preferences of entrepreneurs. In this paper, the findings of the surveys on locational preferences of entrepreneurs in Italy, Germany and the Netherlands will be presented and compared. The paper is particularly focused on the general patterns and the strength of the locational preferences, the perception by entrepreneurs in different parts of the country, and the underlying location factors.

The next section is dedicated to the conceptual and theoretical framework for this paper. The third section focuses on the design and the methodology of the surveys conducted in the three countries. The following sections then present and discuss the results: the general pattern of the locational preferences and the differences in level within the preference maps are discussed in the fourth and the fifth sections, respectively; the effect of the location area on the preferences is discussed in the sixth section; the seventh and the eighth section are focused on the comparison of the underlying explanatory factors, taking the results of principal component analysis and content analysis, respectively, into consideration. In the ninth section, conclusions are drawn and a few remarks are made about policy implications.

[1] Other surveys using a similar approach have been conducted by others, in Hungary (Kozma 2000) and the Czech Republic (Spilková 2007).

[2] The arguments used in this paper are based on Musolino (2015).

2 Conceptual and theoretical framework

The behavioural approach to location theory constitutes the theoretical background of the research presented in this paper. The behavioural approach arose and developed as an alternative paradigm to the neoclassical approach to location theory and, more generally, to all approaches based on assumptions of rational behaviour of entrepreneurs.

In the neoclassical approach (Von Thünen 1842; Weber 1909; Lösch 1940; Hoover 1948), firm location is seen as a purely 'objective' question, where entrepreneurs are assumed to be rational economic actors who are fully informed and able to exploit that information optimally with the ultimate goal to maximise profit. The main neoclassical theoretical contributions addressed the question of firm location focusing on different aspects internal to the firms (internal economies). While Weber (1909), for example, stressed the role of costs (least-cost approach), Hoover (1948) shifted the attention to the objective of obtaining the greatest revenues (market-oriented approach). Other authors developed models focused on the decision process for choosing the optimal location (Malczewski 1992; Badri et al. 1995).

In the last decades, various authors have linked the 'objective' question of the best location to external economies, relating it to location factors on the supply and the demand side. Porter (1990, 2000), for example, shed light on a set of factors that are decisive for the competitiveness of nations and clusters, such as production factors, quantity and sophistication of demand, and the presence of suppliers and competitors. Krugman (1991a, b) developed a core–periphery model based on agglomeration and dispersion forces, giving attention to factors like demand, labour market and forward and backward linkages. Pisano and Shih (2009) highlighted the importance of 'industrial commons' (intangible factors such as know-how and skills). Hidalgo and Hausmann (2009), studying economic complexity and wealth of countries, stressed the importance of non-tradable 'capabilities' (such as infrastructure and intangible factors like regulation and specific labour skills). The institutional approach (Granovetter 1985; Storper and Salais 1997) underlines the relevance of social and institutional factors for firm location. In the literature on industrial districts (Becattini 1975, 1989; Garofoli 1981; Pyke et al. 1990), special attention is given to the role of regional institutions. Cooter and Schäfer (2012) focused on legal institutions, which they regard as an essential basis to build trustworthy relationships between investors and innovative entrepreneurs. Legal institutions can therefore be seen as a key location factor to attract financial capital.

In contrast to these approaches to firm location, the behavioural approach stresses the role of non-economic aspects of location decisions. The entrepreneur is seen as a 'satisficer', not an 'optimiser'. According to this approach, entrepreneurs are not fully informed, their ability to use the available information is limited, and they have other motives and goals besides maximising their own profit. Simon (1957) has introduced the concept of bounded rationality in order to make clear that the

capacity of humans to act rationally is limited.[3] The degree to which economic actors are informed and their ability to make optimal use of available information were combined by Pred (1967) in a behavioural matrix. The limited degree to which entrepreneurs are informed is due to a knowledge gap that might be closed by gathering more information, but also to the fundamental unpredictability of future events and developments (Mack 1971). Hargreaves-Heap (1989) argues that rationality can also take the form of expressive rationality, where one's own insights are important, or procedural rationality, where the tendency to conform to social norms and rules prevails. According to Gigerenzer and Goldstein (1996), economic actors can be seen as 'ecologically rational' in the sense that their rationality depends on structures found in the environment and on the use of their limited information-processing abilities.

In the behavioural approach, both economic and non-economic (i.e. social, cultural, psychological, etc.) considerations affect the decisions of entrepreneurs and their locational preferences. The spatial behaviour of entrepreneurs is determined not so much by spatial reality as by the subjective image that they have of that reality (Meester 2004). Therefore, concepts like perception and cognition (Dietvorst et al. 1984; Stern and Krakover 1993), image (Van den Bosch 1977; Spencer and Dixon 1983; Pellenbarg 1985) and mental maps (Gould 1966; Gould and White 1974; Tuan 1975), derived not only from economics and geography but also from psychology and other social sciences, are fundamental in behavioural geography.

With regard to the concept of mental maps, it should be noted that the term has more than one meaning. Meester (2004) presents a classification of mental maps consisting of four categories. The first one is the mental map in a narrow sense, that is, the map image as it appears in someone's mind. The second one is that of the 'sketch maps' (Saarinen 1995), the maps which represent an image on paper, drawn freehand by the individual. The third kind of mental maps are the ones defined as 'knowledge maps', corresponding to the cartographic representation drawn to scale of spatial knowledge that people have about 'objective' conditions such as the existence of spatial elements, spatial conditions, etc.[4] The fourth type are the 'preference maps', the cartographic representation drawn to scale of spatial preferences and ratings (Meester 2004), that is, the representation of the attitudes that people hold about places (Tuan 1975). This is the type of mental map that will be focused on in the present paper. Preference maps have been used in behavioural geography to analyse residential preferences of school leavers and of students (Gould 1966; Gould and White 1974; Lee and Schmidt 1985, 1988) and locational preferences of entrepreneurs.

[3] Bounded rationality has become an important concept in behavioural economics (see e.g. Kahneman 2003).

[4] The second and the third type are overlapping, as individuals may be asked to draw their knowledge of 'objective' conditions freehand. This problem is solved by the proposition of Székely and Kotosz (2018), who offer a typology of mental maps of existing geographical objects drawn on paper ('strict mental maps', 'Lynch type', 'free sketch maps'). The 'interpretative maps' (Didelon et al. 2011), where the respondents are asked to draw regions, or rather the limits of these regions, on a map provided by the researcher, might be regarded as an example of the overlap mentioned above.

3 Methodology: the survey

Within the line of research started by Pellenbarg and Meester, surveys on the stated locational preferences of entrepreneurs were conducted in the Netherlands,[5] Germany and Italy, as mentioned. The methodology that has been applied is basically the same for each of the studies in this line of research. For the sake of comparability, all surveys were set up in the same manner.

In Germany and the Netherlands, postal surveys were conducted in the form of a very short questionnaire in which the central element is a map of the country showing a number of locations. In the accompanying key question, the respondents (entrepreneurs managing firms with a minimum size of 10 persons employed, in selected branches of manufacturing and services) were asked to imagine that they had to relocate their firm, and, based on that assumption, to rate each of the places indicated on the map as a possible location for their firm, using a five-point ordinal scale.[6] The respondents were requested to write their ratings of the locations in the corresponding rectangles on the map. Besides the map, the questionnaire contained a page with some additional questions, including one about the size of the market area.

In the Italian survey, some changes were introduced in order to adapt it to the characteristics of Italy, and to make the survey as efficient as possible. These changes concerned the spatial elements to be rated, the means of communication and the additional questions.

The spatial elements to be rated for Italy were the administrative territorial units, both regions (NUTS2) and provinces (NUTS3).[7] This was a significant change from the option chosen in the other surveys, where places (cities and towns) were the spatial elements to be rated. In Italy, however, regions and provinces determine the most popular geographical map of the country in the minds of the population, as they are the territorial units typically targeted by other studies (Colombo et al. 2014; Manzocchi et al. 2013; Nifo and Vecchione 2014) and surveys, such as the yearly survey on the quality of life in the Italian provinces by Il Sole 24 Ore (2015). Unlike cities, these territorial units are the locational environments most consistent with the patterns of the Italian economic geography, where both urban and extra-urban development seem to be important (industrial districts represent a typical example of extra-urban, or rather, to be more accurate, rural–urban economic development).

[5] In the Netherlands, surveys at the national scale were conducted in 1983, 1993, 2003 and 2012.

[6] 'very unfavourable', 'unfavourable', 'neutral', 'favourable', 'very favourable'.

[7] The choice of the spatial elements to be rated, in terms of type and number, is an important methodological step in this type of research. The spatial elements should be homogeneous, representative and recognisable. Their number should not be too small, in order to be able to derive a sufficiently detailed image of the locational preferences, and not too large, because that would decrease the response rate, and the capability of the respondents to evaluate all elements would be under too much pressure. In Italy, the number of regions (NUTS2) is too small (20), and they do not offer a sufficiently disaggregated image of the Italian geography. Provinces offer a highly detailed picture of Italy, but their number is too large (110). Therefore, a method was designed in which, for every single region, the choice between rating only the region or also the provinces within it, was left to the respondents.

All regions and provinces are mentioned in the questionnaire, so the researcher does not have to make any subjective decision about including or excluding individual spatial elements.

With regard to the means of communication, it was decided to carry out a web survey, introducing a cost and time saving innovation in the research line, so far realised by postal surveys. An electronic questionnaire with an interactive map was developed, and a stepwise mechanism for rating was applied in order to enable the respondents to rate regions and, optionally, provinces as well. The respondents were requested to rate all regions on the map. By clicking on a region, a pop-up opened that enabled the rating of the region that was chosen. In the same pop-up, the respondent was asked to choose whether to rate each of the provinces that are part of this region separately, or to rate all of them at once by assigning them the same mark as the region.

In order to increase the explanatory power of the information collected by the survey, some questions about the personal characteristics of the respondents and two open questions were introduced. Answering the open questions, the respondents had to comment the rating they had given to four provinces (two of the provinces with the best ratings and two of the provinces with the worst ratings).

In the following sections, the results of the survey in Italy, conducted in 2011, will be compared with those of the survey in Germany, conducted in 1996, and the most recent survey in the Netherlands, which was conducted in 2012. The results presented here for Italy, Germany and the Netherlands are based on 225, 184 and 312 respondents, respectively. These are the respondents that properly filled in the questionnaire. The results of the comparison should be interpreted with some caution because of the differences between Italy and the other two countries with respect to the type of rated elements and the means of communication.

4 General preferences: the patterns of the mental maps

Looking at the mental maps for Italy, we can point out that the perception by the Italian entrepreneurs is mostly characterised by the gap between the Northern and Central regions on the one hand, and the Southern regions on the other (Fig. 1a). At the same time, considering that within the Northern regions there are relevant differences between regions and provinces, it is also possible to observe a centre–periphery opposition, between what is called the Padana region (Lombardy, Emilia-Romagna, Veneto) and the other parts of the country. Figure 1b (at the provincial scale) shows a more detailed view of the difference between the core of Padana and the surrounding areas.

In Germany and the Netherlands, the dominant spatial patterns of the mental maps of entrepreneurs are at first sight quite different. As regards the German entrepreneurs (Fig. 2a), the clearest pattern is that of the main urban areas (Berlin, Hamburg, Hanover, Rhein-Ruhr, Frankfurt, Nuremberg, Munich) as opposed to other areas. It reflects the polynuclear character of Germany (Meester 2004). The second pattern that can be observed is the centre–periphery dichotomy. This

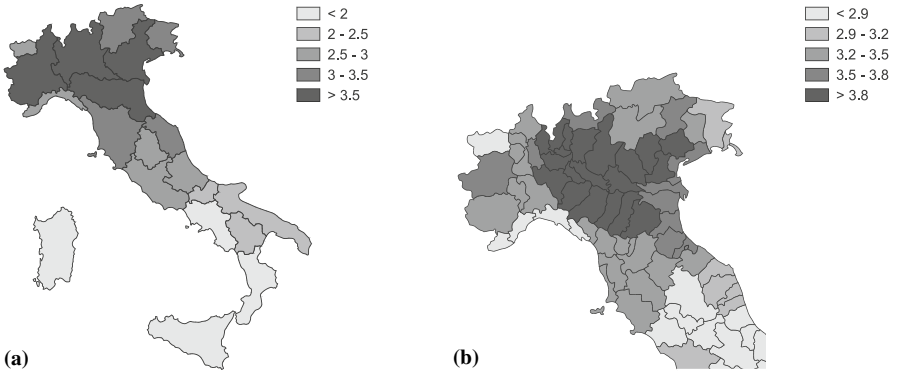

Fig. 1 Average ratings in Italy 2011. **a** Regions. **b** Provinces

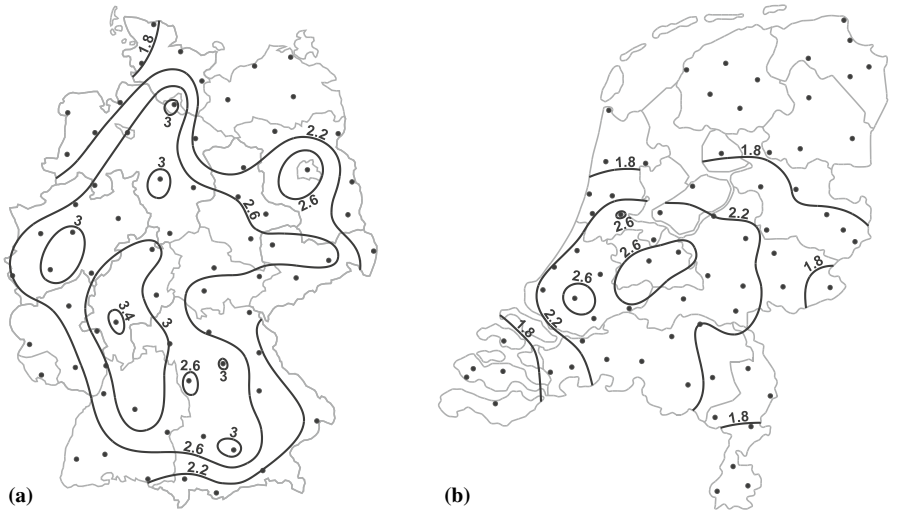

Fig. 2 Average ratings of locations. **a** Germany 1996. **b** The Netherlands 2012. *Sources*: **a** Reprinted by permission from Springer Nature: Springer Nature, Locational Preferences of Entrepreneurs. Stated Preferences in The Netherlands and Germany, by Wim Meester, Copyright (2004); **b** Pellenbarg (2012)

second pattern features Frankfurt, being the most attractive place, as the centre. The lowest ratings are found in the periphery.

In the mental map of the Dutch entrepreneurs (Fig. 2b), the centre–periphery dichotomy is the most evident pattern: high ratings are assigned to the centre of the country (Utrecht) and low ratings to the periphery. Secondary peaks can be noticed for Amsterdam and Rotterdam, the two largest cities in the Netherlands, indicating that the size of urban areas plays a role in the mental map of Dutch entrepreneurs as well.

Clearly, the centre–periphery dichotomy is the common element in the three surveys. It constitutes the predominant pattern in the map of the Netherlands. In

Germany, this pattern is as much evident as the pattern of the main urban areas. In Italy, it appears as evident as the North–South divide.

It is also interesting to compare how the average ratings decline from the centre to the periphery. In Italy, there is a kind of homogeneous 'platform' with very high ratings, i.e. ratings of approximately 4, concentrated in Lombardy, Veneto and Emilia-Romagna (Fig. 1b). This 'platform' is surrounded by areas that also get positive ratings, although slightly lower (Piedmont, Friuli, Trentino-Alto Adige, Tuscany, Marche). Outside these areas, the average ratings decline and become negative (that is, lower than 3) going in a northerly and a westerly direction to 'peripheral' regions like Val d'Aosta and Liguria, and going southward towards Umbria, Lazio and the Southern regions. In Southern Italy, the unfavourable ratings decrease further going towards the western side of Mezzogiorno (Campania and Calabria) and the Islands (where the average mark is lower than 2).

In Germany, a wide area of very high ratings like the Padana area in Italy does not exist (Fig. 2a). The highest peak, Frankfurt, scores 3.48. The other large agglomerations in the country also correspond to peaks, as mentioned. The area of very low ratings is located in the peripheral parts of the country, as in Italy, but it is not very extended. In Germany, there are 'ridges' of high ratings radiating out from Frankfurt: northward to Hamburg, eastward to Dresden, in a south-easterly direction to Munich and in a north-westerly direction to the Ruhr area (Meester 2004).

In the Netherlands, places with a positive average rating, that is, higher than 3, are lacking (Fig. 2b). The area with very low ratings is relatively wide, and it is rather homogeneous.

5 Differences in level: the range of the average ratings

The preceding observations about the way ratings decline from peaks to low-rated plains are an invitation to analyse the size of the differences between the highest and the lowest average ratings. The first impression that emerges from the maps is that in Italy these differences are relatively large. In Germany and the Netherlands, the mental map of the entrepreneurs appears flatter.

The standard deviation of the average ratings in the surveys (Table 1) clearly indicates that the variability of the average ratings is indeed higher in Italy than in the other two countries. Both at the regional level (NUTS2) and at the provincial level (NUTS3), the standard deviation is more than 0.70, as opposed to the standard deviations for Germany (0.43) and for the Netherlands (0.39).

The difference in this respect between Italy and the two other countries can also be determined more simply by subtracting the lowest from the highest average mark for each of the three countries, in other words, by calculating the range of the average ratings (Table 1). In Italy, the difference between the best rated and the worst rated region (Lombardy and Calabria) is equal to 2.34, while in Germany the difference between the best and the worst rated location is 1.71, and in the Netherlands 1.44.

Table 1 Average ratings of locations in Italy, Germany and the Netherlands

	Italy 2011; NUTS2	Italy 2011; NUTS3	Germany 1996	The Netherlands 2012
Standard deviation	0.72	0.76	0.43	0.39
Highest	4.07	4.07	3.48	2.86
Lowest	1.73	1.72	1.77	1.42
Range	2.34	2.35	1.71	1.44

All numbers in this table refer to the average ratings of locations, not to individual ratings by respondents

The larger range of average ratings in Italy concerns not only the elements that were rated but also larger areas. If Germany is divided into four areas, and the average rating for each of these areas is calculated as the average rating of the locations within it,[8] the difference in rating between the best marked area (west) and the worst marked area (east) is 0.52. In the Netherlands, the difference between the best and worst marked areas (west and north, respectively) is 0.72. In contrast, the difference between Northern Italy and Mezzogiorno is 1.31.

6 The effect of the location area: locational self-preference

Analysis of variance was applied to examine the influence of firm characteristics (location area, sector, size of market area and firm size) on the ratings. For each of these firm characteristics, a separate test was performed for each of the rated elements (regions in Italy, places in Germany and the Netherlands) with the rating as the dependent and the firm characteristic as the independent variable.

Most of these tests do not yield significant results. Firm characteristics showing a significant relation with the ratings for a large number of locations are the type of activity (sector) for the Netherlands and firm size for Germany. The only variable with a considerable influence in all three countries is the location area of the firm. Its implications are interesting, due to the so-called locational self-preference, the general preference of many entrepreneurs for their own geographical environment (Meester 2004).

The role played by self-preference in the three countries can be visualised in maps representing the ratings given by entrepreneurs in different location areas. The main element emerging from a comparison of maps of this kind for the three countries (Figs. 3 and 4) is that the preference of entrepreneurs for their own area, which is clearly visible for Germany and the Netherlands, is not as obvious for Italy.

Examples for Germany and the Netherlands are shown in Fig. 3. It shows the average ratings by entrepreneurs in the federal state of North Rhine-Westphalia and those by entrepreneurs in the provinces of South Holland and North Brabant.

[8] The same procedure has been followed for the Netherlands, where also four areas are distinguished. The calculation of the average ratings for each of the three areas in Italy (North, Centre, South) is based on regions (NUTS2).

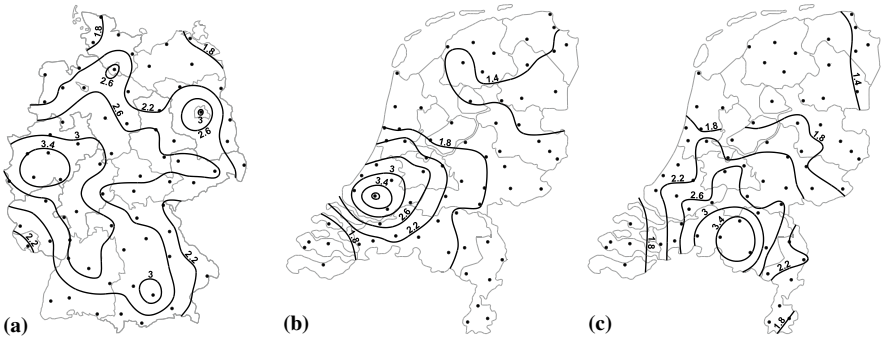

Fig. 3 Average ratings by firm location. **a** North Rhine-Westphalia 1996. **b** South Holland 2012. **c** North Brabant 2012

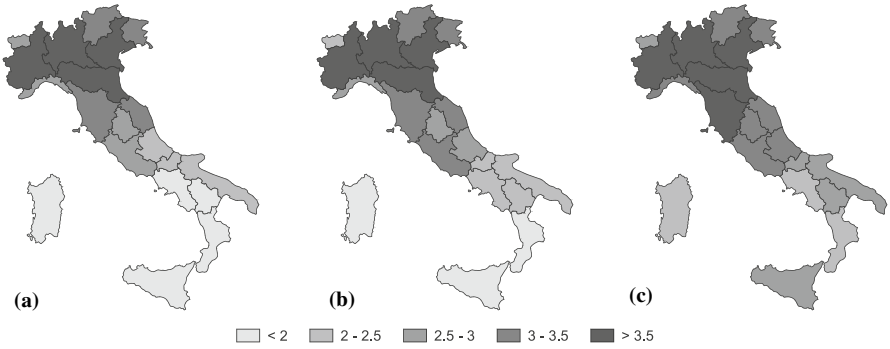

Fig. 4 Average ratings by firm location, Italy 2011. **a** North. **b** Centre. **c** South

In each case, the best rated locations lie within the federal state or province in which the entrepreneurs are located, a pattern that can be found for virtually all German states and Dutch provinces. One of the few exceptions is Schleswig-Holstein, in the northern periphery of Germany, where the peaks are not in the state itself but in the area between this state and the centre of the country.

Similar results are found if each of the two countries is divided into four areas, in the same way as in the previous section, and four groups of entrepreneurs are distinguished based on the area in which they are located. The highest average rating by each group of entrepreneurs is given to the area in which they are located. There is only one exception: entrepreneurs in northern Germany give higher ratings to the western part of their country than to their own region.

In Italy, the situation is different. Looking at the three maps for entrepreneurs in, respectively, the Northern, Central and Southern regions (Fig. 4), it appears that, even if the Southern regions obtain a higher rating by the entrepreneurs located there, these entrepreneurs still consider Central and Northern regions to be better places. A similar pattern can be noticed for entrepreneurs in the Central regions. Therefore, the predominant image of Italy, featured by the North–South

divide and the preference for the Padana region, is visible for each of the three groups of entrepreneurs. So, notwithstanding the statistically different marks assigned to most of the regions by the three different groups of Italian entrepreneurs, the territorial hierarchy, the geographical pattern that they have in mind, is common to all of them. Locational self-preference does not seem to work in Italy, in the sense that it hardly affects the ranking of the regions in terms of attractiveness.

These results strengthen the idea that Southern Italy is unusually weak in terms of attractiveness. One of the factors that could explain this is undoubtedly the fact of its peripherality. The preferences of entrepreneurs in northern Germany indicate that peripherality matters. However, other explanatory factors may also contribute to the negative image of this part of Italy.

7 Location factors: the results of principal component analysis

The analyses discussed in the previous sections were focused on the ratings of the possible locations. Principal component analysis was applied in order to identify the explanatory factors which underlie these ratings, that is, the hidden patterns that affect the mental maps of the entrepreneurs and that relate to underlying social, economic, cultural and political location factors. For each of the three countries, a principal component analysis with varimax rotation was carried out, in which the respondents are regarded as cases, and the variables are linked to the rated elements (places in Germany and the Netherlands, regions in Italy). For example, the variables for Italy are the rating of Piedmont, the rating of Lombardy, etc. As a consequence, the loadings on the components can be depicted in maps. In principal component analysis, the identity of the components is usually determined by interpreting a table of factor loadings, but in this paper, the role of that table is performed by maps, which facilitates interpretation. Varimax rotation of three components was chosen because it leads to results that lend themselves well to interpretation in terms of general location factors.

For each country, three maps, representing the loadings for the rotated components, will be shown and discussed here[9] (Figs. 5, 6 and 7). Together, the three components shown for Germany explain 57% of the variance in the ratings. The corresponding percentages for the Netherlands and Italy are 59 and 51, respectively.

The first impression from viewing these maps may be quite confusing. Differences are definitely apparent, and each country seems to have its own patterns. However, at least one common underlying element can be noticed, in other words, a common explanatory location factor for all three countries, and that is a factor associated with centrality and accessibility. This factor is ‘relative location with respect to the national market’. In Germany, it is represented by component

[9] For the principal component analysis presented in this section, the results of the survey in 1983 have been chosen for the Netherlands because of their clarity. The results for that survey are based on 388 usable forms.

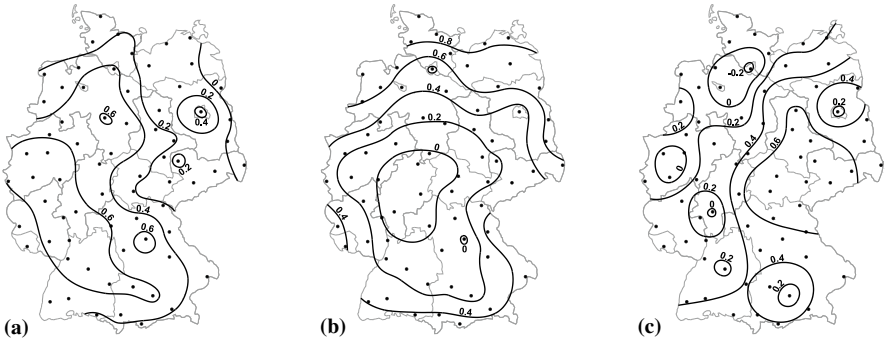

Fig. 5 Principal component analysis, loadings for three rotated components, Germany 1996. **a** Component 1. **b** Component 2. **c** Component 3. *Source*: Reprinted by permission from Springer Nature: Springer Nature, Locational Preferences of Entrepreneurs. Stated Preferences in The Netherlands and Germany, by Wim Meester, Copyright (2004)

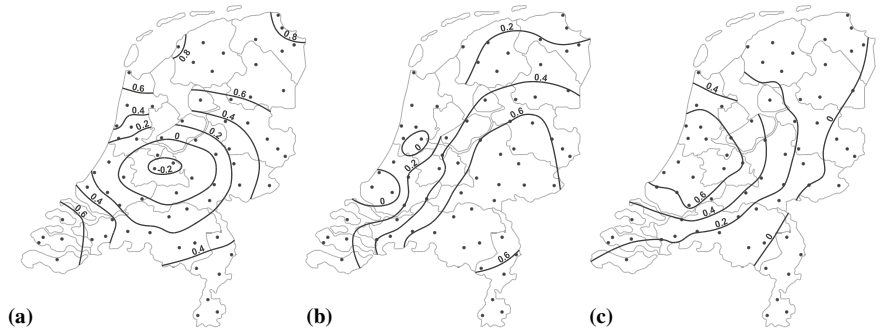

Fig. 6 Principal component analysis, loadings for three rotated components, the Netherlands 1983. **a** Component 1. **b** Component 2. **c** Component 3. *Source*: Meester and Pellenbarg (1986)

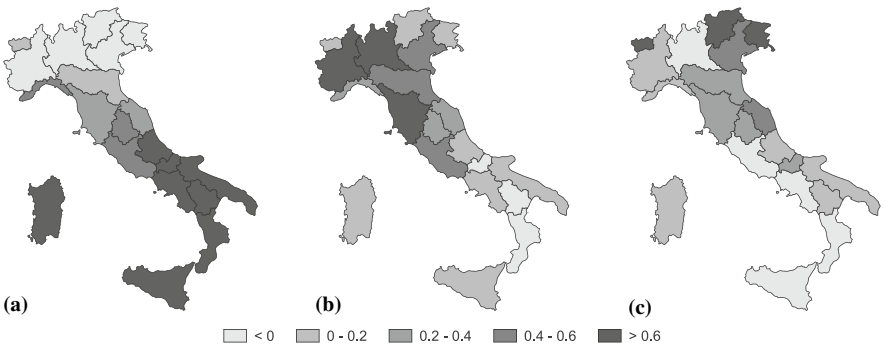

Fig. 7 Principal component analysis, loadings for three rotated components, Italy 2011. **a** Component 1. **b** Component 2. **c** Component 3

2, in the Netherlands by component 1. The centrality aspect is predominant in the loading patterns of these components. In Italy, relative location with respect to the national market is represented by component 2. The area with high loadings on this component ranges from the Padana area to Tuscany and Lazio. This area is strongly interconnected by an efficient and modern transport network. It is characterised by a considerably higher level of accessibility compared with other Italian regions (Beria et al. 2017). Low loadings are found for Southern Italy and the Alpine regions.

Another common pattern, for Germany and the Netherlands, is the one that opposes large urban areas to smaller places. It highlights the role played by the location factor 'agglomeration effects'. In the case of Germany, such a factor can be observed in component 3, where the large agglomerations have low loadings in contrast to the other areas. For the Netherlands, the agglomeration effect is also noticeable in component 3. The Randstad area, with the four largest cities of the Netherlands, has high loadings on this component compared with the other areas.

Other common factors are less easy to identify. A location factor called 'residential environment' (quality of living) was observed for the Netherlands. It is associated with the second component and opposes coastal areas to areas in the east and south. The map image is remarkably similar to the pattern of residential preferences uncovered by Heida and Gordijn (1978). Coastal areas, and especially the main cities, score lower as a residential area than the provinces in the south and east. In the case of Italy, 'quality of living' might be associated with the third component. This component opposes Lombardy, Lazio, Campania, Calabria and Sicily (where the perceived quality of living would be relatively low) to Val d'Aosta and regions in the north-east of Italy (where it would be higher). In this case, the congestion effect might play a role in the 'rejection' of the large agglomerations Milan (in Lombardy) and Rome (in Lazio). The other Northern and Central regions are characterised by a more balanced spatial structure. The perceived quality of living would then also be related to negative circumstances in Southern Italy (lack of basic services, presence of organised crime, etc.). In Germany, a component representing residential environment cannot be easily identified. Monheim (1972) states that residential preferences of Germans are generally directed to large agglomerations. In that case, 'residential environment' would coincide with the factor 'agglomeration effects'.

Component 1 in Germany is not easy to interpret. It shows an opposition between a south-western area that stretches from the Ruhr area to Munich on the one hand, and the eastern and northern regions on the other. A location factor which could contribute to explain this component is, for example, what is sometimes called the 'Rheinschiene', a densely populated zone with a high degree of economic activity, also outside the urban areas (Meester 2004).

The last reflection concerns a dichotomy between macro-areas. In the case of Italy, such a pattern is represented by component 1. It corresponds to the North–South divide. This location factor can be observed only in Italy. In Germany, as far as component 1 is concerned, an explanation has been considered in terms of the East–West dichotomy, but this does not provide a full explanation and therefore cannot be fully convincing (Meester 2004).

8 Location factors: the results of content analysis

In the previous section, the importance of the location factors that affect the mental maps of entrepreneurs was established in an indirect way, based on the evidence coming from statistical analyses. In this section, attention is paid to qualitative data from Italy and the Netherlands that allow us to establish the influence of location factors in a more direct way, by analysing the answers that entrepreneurs have given to questions about this topic. For the Netherlands, the data used here were collected through 29 interviews, conducted in a separate survey in 1984, in which entrepreneurs were asked which location factors they would take into account if they had to relocate their firm (Meester 2004). For Italy, the data used here are the answers to the two open questions in the web survey in which the respondents had to comment the rating they had given to four specific provinces, as mentioned above. For each individual respondent, the four provinces were randomly selected by the software: two of the provinces with the best ratings and two of the provinces with the worst ratings given by the respondent.

For both countries, content analysis was used to split the answers into statements, identifying the location factor and, in the case of the Netherlands, the spatial scale that the respondents were referring to. The national scale, i.e. the scale that applies to the distinction between regions within the country, is the appropriate one for a comparison with the results of the content analysis for Italy. In the survey in the Netherlands, the number of statements per respondent varied considerably. Weighting was applied in order to compensate for this.

Caution should be taken in comparing the results of the content analysis for the two countries because of the differences in time, in the methods that were used and in the classification of the answers. Nevertheless, in spite of these differences, there is a remarkable resemblance in the results.

The issues related to relative location and accessibility (geographical location, closeness to markets, transport, infrastructure), mentioned as the first three factors in Table 2 and in Table 3, are definitely important considerations for entrepreneurs in both countries. In the case of the Italian survey, these issues account for 52% (best marked) to 57% (worst marked) of the statements by the respondents. In the case of the Dutch survey, their share was about 45%.

Less important, but nevertheless mentioned frequently, are the following location factors: the issues related to agglomeration effects (industrialisation, research, the presence of competitors), mentioned as the fourth and fifth factors in each of the tables, account for 7 to 16% of the statements in Italy, and for 10% in the Netherlands, so its relative importance as a location factor in the two countries is similar. The importance of government (public institutions and policies) is also similar (6–11%), and the same is true for labour market (human capital), accounting for 5 to 7% of the statements. The percentage of statements in which the living environment (quality of life) is mentioned as a location factor varies from 5 to 9.

Considerable differences between the two countries are found for a number of other location factors. In Italy, organised crime is supposed to be a very important

Table 2 Location factors mentioned at the national level (weighted), the Netherlands 1984

Location factor	Percentage of statements
Relative location	31.3
Accessibility	3.4
Infrastructure	9.8
Agglomeration effects	7.3
Competition issues	2.7
Government	5.6
Labour market	7.1
Living environment	4.9
Mentality of population	11.3
Regional ties	14.1
Other factors	2.6
Total	100

Table 3 Location factors mentioned for the best and worst marked provinces, Italy 2011

Location factor	Percentage of statements	
	Best marked provinces	Worst marked provinces
Geographical location	14.7	14.6
Transport services and logistics	18.6	26.4
Closeness to suppliers/markets	18.3	16.1
Industrialisation	9.7	5.1
Research and innovation	6.8	1.6
Public institutions/policies	11.1	5.9
Human capital	5.4	5.5
Amenities and quality of life	9.3	5.5
Organised crime/security	–	13.0
Ethics and cultural factors	1.1	0.8
Personal reasons	2.2	3.1
Total	100	100

location factor that negatively affects the image of some regions. In the Italian survey, this is reflected in the fact that 'crime' accounts for 13% of the statements that were made with regard to the worst marked provinces. Organised crime was not mentioned in the Netherlands. The relatively small number of statements about crime that were made there is included in the category 'living environment'.

A factor that was mentioned only for the Netherlands is 'regional ties' (14% of the statements). A possible explanation for the difference with Italy in this respect can be found in the different design of the surveys: in the Italian survey, the key question was the one in which the respondents were asked to rate all regions in the country as a possible location for their firm. This question might be less

appealing to entrepreneurs for whom regional ties are important, which makes them less likely to participate in the survey. In the Netherlands, the key question of the interviews was about location factors only.

The difference between the two countries with regard to issues like mentality, ethics and culture is not easy to explain. These issues account for 11% of the statements in the Dutch survey, while they are hardly mentioned by the Italian entrepreneurs.

9 Conclusions

In conclusion, we can state that the mental maps of entrepreneurs in Italy, Germany and the Netherlands are characterised by both similarities and differences.

Characteristics which are common to the map image for the three countries are the high ratings of central locations and the low ratings of peripheral areas. For each of the three countries, the principal component analysis reveals a component that represents relative location with respect to the national market. The results of the content analysis for Italy and the Netherlands indicate that issues associated with relative location and accessibility are an important location factor in both countries. Agglomeration effects, government, labour market and the living environment are also mentioned frequently, as the content analysis shows.

These findings can be useful in order to identify the priorities for policies to attract investment. The importance of issues associated with accessibility gives cause for policies to improve the accessibility of areas that are perceived as being less attractive, through investments in transport infrastructure and services. A more direct way to improve the image of peripheral areas is an appropriate marketing policy, with entrepreneurs that are already located in the area as one of the possible target groups.

Amongst the differences between the countries is the high rating of large agglomerations that appears in the map image for Germany, a pattern that is less predominant in the map image for Italy and the Netherlands. Italy emerges as different from the other two countries in several respects: the North–South divide, with high ratings for the North and low ratings for the South of Italy, the relatively weak locational self-preference and the explanatory role of organised crime.

This last factor, which is mentioned only for Italy, is likely to be one of the specific factors that can explain the negative rating of Southern Italy by Italian entrepreneurs. The effect of organised crime on foreign direct investment was pointed out by Daniele and Marani (2011). However, other possible explanations for the negative rating of Southern Italy should not be disregarded. The role of the 'institutional quality' of Southern areas is highlighted by Nifo and Vecchione (2014). The relatively low level of economic development might also be a factor in itself. Some authors attribute the economic difficulties of the Southern regions to social and cultural factors. Putnam et al. (1993) refer to the concept of social capital, which is supposed to be less present in the Southern regions, and Banfield (1958) refers to the concept of 'amoral familism', which makes, according to him, the Southern society family-centric and unable to act for the common good.

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