# CREATIVE FIRMS AS CHANGE AGENTS IN CREATIVE SPACES

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ABSTRACT. This paper focuses attention on a quantitative analysis of the creative sector. After a selective and concise literature review, it discusses three important methodological advances, viz. a spatial-econometric approach, a non-parametric business performance analysis based on Data Envelopment Analysis, and finally, a comprehensive and integrated modelling framework in which a so-called 'Flying Disc' model is used as a tool for specifying and estimating a Structural Equations Model. The paper offers finally some concluding remarks.

KEY WORDS: creative sector, creative industries, business performance analysis, Flying Disc model, Structural Equations Model, new economy, knowledge-based society, data envelopment analysis, strategic performance management, spatial distribution, geographical determinants

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## 1. Creativity: the cornerstone of the new economy

Recent changes in business environments in a competitive and open economy have dramatically transformed the way of pursuing business. Nowadays, successful business depends heavily on the ability to generate, access and utilise new knowledge, innovations and technologies (Forte et al. 2006, Kourtit & Nijkamp 2012, Tellier 2009). Modern firms are challenged by both intra-firm dynamics and external trend changes. A modern management tool, viz. strategic performance analysis instigated by an open managerial mind, may then prompt a flexible response in a rapidly changing, globally competitive economy. These dynamic environments demand that firms be innovative with respect to their product and service supplies (Deeds et al. 1999). Through a smart, proactive attitude, they can remain and become more economically viable, and can better realise their sustainable competitive advantages, while being customer-oriented in global markets.

Clearly, a high quality of local and regional environmental resources may influence strategies and processes as well as the choice of location and spatial patterns of these firms (Pfirrman 1994, Lagendijk 2001, Oughton et al. 2002, Porter 2000), create a new entrepreneurial, employment and market potential (Bergmann et al. 2002), and offer novel opportunities which can help a firm to make better use of business activities. In this

way, these firms can achieve a higher sustainable business success in a dynamic and competitive environment than other industries (see, e.g., Beise & Stahl 1999).

Successful firms normally adopt a high degree of professional specificity to generate significant added value for the stakeholders, both economically and spiritually. They are often characterised by rapidly changing design specifications in order to serve increasingly individualistic lifestyles (Scott 2006). Usually, they also have a high potential to unlock and serve new markets with high levels of macroeconomic uncertainty and a dynamic spatial-economic and flexible business climate.

This emerging 'new economy' is characterised not only by new types of industry, but also by the fact that these emerging industries can make a significantly higher contribution to growth and innovation within a broader knowledge-based society. These conditions are often met in creative sectors and industries, such as high-tech industries, business and financial service sectors operating in knowledge-intensive market segments with high-skilled (high-wage) workers, and specialised cultural and creative industries.

Cultural industries (such as performing arts, media activities) belong to a broader class of the creative sector. The creative sector is not an unambiguously defined economic sector. In the context of the present paper, it refers to a heterogeneous group, in particular to the following classifications of economic activities and their Dutch Standard Industrial Classification (SBI) codes (see Table 1).

A major issue to be addressed in the present paper is the geography of the creative sector, in other words, *where are creative industries located in space, and why?* This main research issue will be addressed from both a conceptual and an empirical perspective. To that end, we will first present in Section 2 an overview of the current state of the art on the spatial constellation of the creative industry. We will then focus on the methodology

Table 1. Classification of creative industries and their SBI codes: Arts, Media, and Creative business services.

| Main domains and classes | Standard Industrial Classification (SBI) | |
|---|---|---|
| | SBI Code | Description |
| **Arts:** Music & Performing Arts, Museums, Theatres and Art Galleries | 92311 | Performing of live stage art |
| | 92312 | Production of live stage art |
| | 92313 | Performing of casting art |
| | 92321 | Theatres, concert rooms, concert buildings |
| | 92323 | Services for performing art |
| | 92521 | Art galleries, exposition areas |
| | 92522 | Museums |
| **Media:** Film, TV, Radio, Photography, Publishing, Broadcasting, Amusement and Entertainment, Press | 2211 | Publishing of books |
| | 2212 | Publishing of periodicals |
| | 2213 | Publishing of magazines |
| | 2214 | Publishers of sound recording |
| | 2215 | Other publishers |
| | 74811 | Photography |
| | 92111 | Production of movies |
| | 92112 | Supporting services for movie production |
| | 92201 | Broadcasting organisations |
| | 92202 | Production of radio and TV programmes |
| | 92203 | Supporting activities for radio and TV |
| | 9212 | Distribution of movies |
| | 9213 | Cinemas |
| | 92343 | Other entertainment |
| | 9240 | Press-, news agencies; journalists |
| **Creative business services:** Advertising and Marketing, Information and Technology, Architecture, Design and Fashion | 74201 | Architecture and technical design |
| | 74202 | Technical design/advice e.g., city building |
| | 74401 | Commercial design and consultancy agencies |
| | 74402 | Other commercial services |
| | 74875 | Interior-, fashion designers |

Source: Kourtit et al. (2012a).

of tracing the determinants and achievement levels of creative firms in geographic space. In particular, in Sections 3 to 5 we will address, in turn, a statistical-econometric modelling approach, a Data Envelopment Analysis (DEA) model, and a more integrated Structural Equations Model (SEM) inspired by the recently developed 'Flying Disc' multilevel model. The final section will then offer some retrospective and prospective remarks.

## 2. A concise review of urban creative sectors

Many cities house a wealth of creative industries, but the spatial dispersion of these industries over distinct types of cities varies significantly. The creative sector appears to find important seedbed functions in less organised, historically-oriented, open-minded and accessible districts of cities. Especially clusters of creative activities appear to be the result of culturally-appealing urban facilities. At the end, creative activities shape a creative city, or more generally, creative spaces. Thus, a 'creative milieu' seems to become increasingly a locational factor for other creative activities as well as – in a broader sense – for culturally-based activities. In other words, a 'bohemian' landscape tends to become a culturally-based creativity- and social innovation-breeding place. Cultural appeal and urban quality of life are the modern attractiveness factors for innovative business, where appropriate urban districts act as cognitive engines and spiritual centres of social capital.

A 'creative milieu' is often instigated by the presence of culturally diverse people, often as a result of a considerable migrant influx into modern cities. Kourtit et al. (2012b) argue that "The increasing variety of migrants may prompt a great cultural diversity, mainly in urban agglomerations (e.g., in terms of local identity, an open and attractive urban 'milieu' or atmosphere, use of tacit knowledge, local embeddedness of new business initiatives, and access to social and financial capital and networks)". It can also significantly contribute to the local or regional economy by increasing the economic and cultural diversity of a city and reducing unemployment among immigrants. As a consequence, many cities in the Western world gradually become a multicultural melting pot: a society with people of different cultures, races and religions (Jacobs 1961), and a magnet to deliver new ideas for the creative industries and economic growth. Diversity has in general a positive effect on creativity, innovation and performance at different scales, from company or organisation to city, region or country. The reason is that being linked to creative activities is a major source of competitiveness for multicultural cities, as it not only stimulates creative ideas and facilitates creative activities, but also encourages cities to boost their international profile, e.g. by attracting investment and a well-educated, creative workforce. Therefore, cultural diversity tends to contribute to the improvement of the creative capacities of cities and regions (see Florida 2002, Landry 2000, Scott 2006). While Jane Jacobs (1961) was still talking about the urban 'melting pot' as the source of creative entrepreneurship, nowadays we speak of a 'mosaic' (see Gang et al. 2011) as a culturally distinct but economically integrated urban migrant constellation.

But also without a clear migrant orientation cities may boost a great creative potential. It has been shown by Kourtit et al. (2012a) that "Our modern cities house indeed a great diversity of *creative classes* and *creative industries*". Creative minds are supposed to develop innovative ideas, to design new forms of technology or architecture, to experiment with new business models, to suggest new roads to sustainable development, and to act as fireplaces for many young people seeking original concepts in a globalising world. The urban creative economy needs an incubator and seedbed for unconventional pathways and roads less travelled, so as to create new competitive opportunities for innovations or new value-generating activities. Various seminal studies have been published in the past decade on the 'creativeness fashion', for instance, by Florida (2002, 2003), Howkins (2001), Landry (2007) and Scott (2006). Broader reviews on creative places and creative people are contained in Fusco Girard & Nijkamp (2011) and Kourtit et al. (2011), amongst others. Creative minds may become innovation engines, as they are able to combine the three forces of Confucian wisdom acquisition: pedagogic knowledge transfer from others, learn-

ing-by-doing mechanisms, and auto-cognitive mental development. From this perspective, creative minds have an exceptional innovation potential in terms of both ideas and practices. These creative talents are abundantly present in urban agglomerations and are believed to have an unprecedented productivity-enhancing potential. And therefore, they may act as effective growth engines in modern cities. In the same study by Kourtit et al. (2012a) a distinction is made between three types of agglomeration externalities in creative urban spaces, viz. Marshall-Arrow-Romer externalities, social capital externalities, and cluster advantages.

In the present paper we will test in particular whether a relatively novel management tool, viz. Strategic Performance Management (SPM), plays a role in the competitive performance of creative industries taking into consideration their geographical constituency as well as their firm size. In this respect, SPM is defined as "the process where steering of the organization takes place through the systematic definition of mission, strategy and objectives of the organization, making these measurable through critical success factors and key performance indicators, in order to be able to take corrective actions to keep the organization on track" (de Waal 2007).

The creative sector is nowadays often seen as one of the most proliferate economic branches in the innovative industry, as it combines cognitive talents with spiritual and managerial originality. In recent years, an avalanche of studies have been published on the importance of the creative sector for urban development. Many of these studies are rather anecdotal in nature, without a clear conceptual and operational framework. The aim of the present paper is to offer a more solid methodological foundation for spatial creativity research. We will first present (in Section 3) an example of a statistical-econometric modelling study that serves to identify the spatially discriminating factors that determine the location of urban creative activities, using an appropriate explanatory econometric model. Next, we will investigate the presence of spatially discriminating effects by using a non-parametric assessment model – a so-called Data Envelopment Analysis (DEA) – in order to identify efficiently and less efficiently operating firms in the creative sector (Section 4). And finally, we will offer a new comprehensive spatial model that tries to map out and estimate all relevant factors (spatial and functional) that are decisive for the presence of the creative sector in a certain place or district. The paper will then be concluded with some retrospective and prospective remarks.

## 3. Spatial distribution of creative sectors: a statistical-econometric analysis

As mentioned above, the seedbed conditions and the spatial socio-economic implications of the creative sector may differ significantly for different cities or regions as well as for different branches within the creative industry. This issue has been extensively researched in a recent study by Kourtit et al. (2012a).

The authors used a comprehensive spatial database for The Netherlands to map out the spatial location patterns of creative sectors using the typology presented in Table 1 above. Their aim was to assess the spatial discriminating impact of various moderator variables in different NUTS–3 regions in The Netherlands. A two-step approach was adopted. First, an analysis of the spatial dispersion of creative sectors on the basis of region-specific covariates was carried out, in order to test whether specific cities attracted a larger share of creative activities (relative to the remaining industrial sectors). In a second step, it was also investigated whether specific branches of the creative sector demonstrated higher growth rates (e.g., in terms of employment) than the remaining industrial sectors.

This research led to interesting findings, which are summarised here as follows:

- The share of the creative sector – in terms of both firms and jobs – in the Dutch economy was still modest over the period 1994–2009.
- However, the share of the creative sector in the Dutch economy rapidly increased over that period (from 4.5% to 9.2%).
- This overall rise of the creative industry did not only hold for the sector as a whole, but also for all the subsectors, viz. arts, media, and creative business services.

– On average, the firm size in the creative sector was smaller than the firm size in the remaining industrial sectors.

A next step in the research was to focus attention on the role of four large agglomerations in The Netherlands, viz. Amsterdam, Rotterdam,

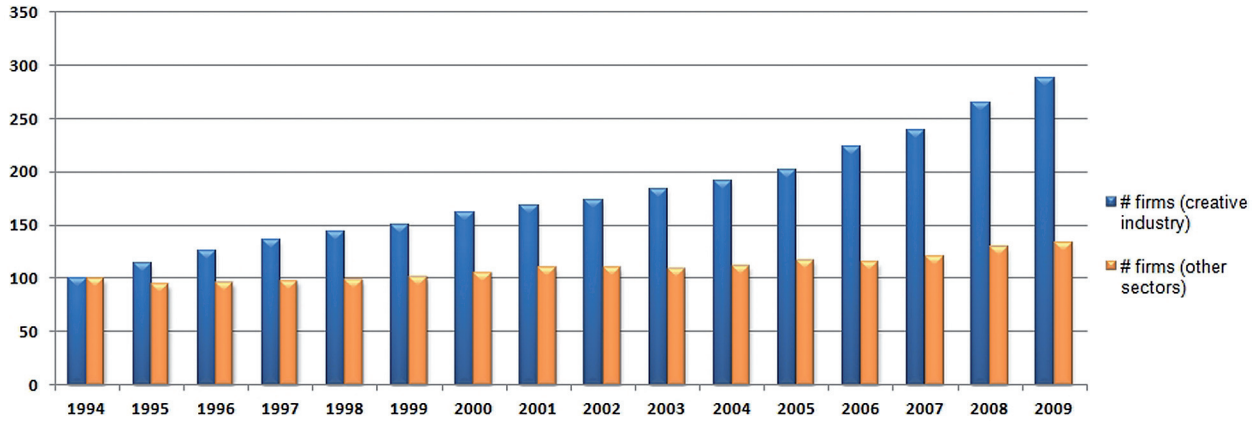


Fig. 1. Number of firms in the creative industry and other sectors (1994 = 100).
Source: Kourtit et al. (2012a).

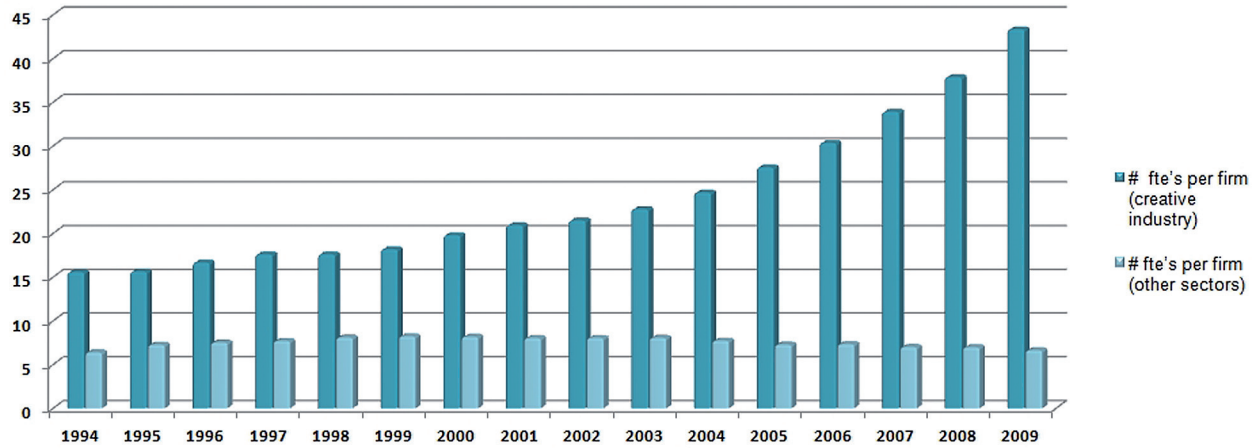


Fig. 2. Average number of full-time employees (fte) per firm in the creative industry and other sectors.
Source: Kourtit et al. (2012a).

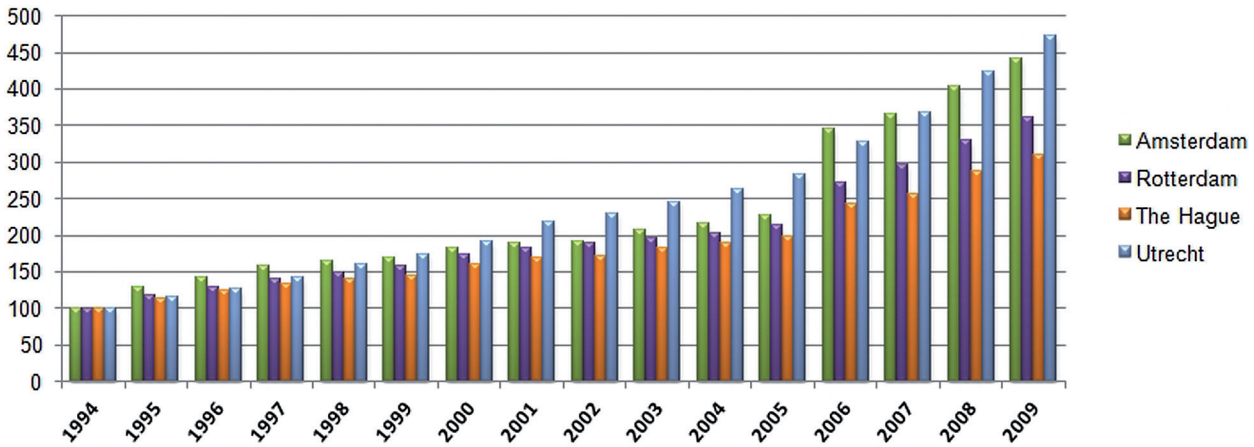


Fig. 3. Number of firms in the creative industry for the four metropolitan areas (1994 = 100).
Source: Kourtit et al. (2012a).

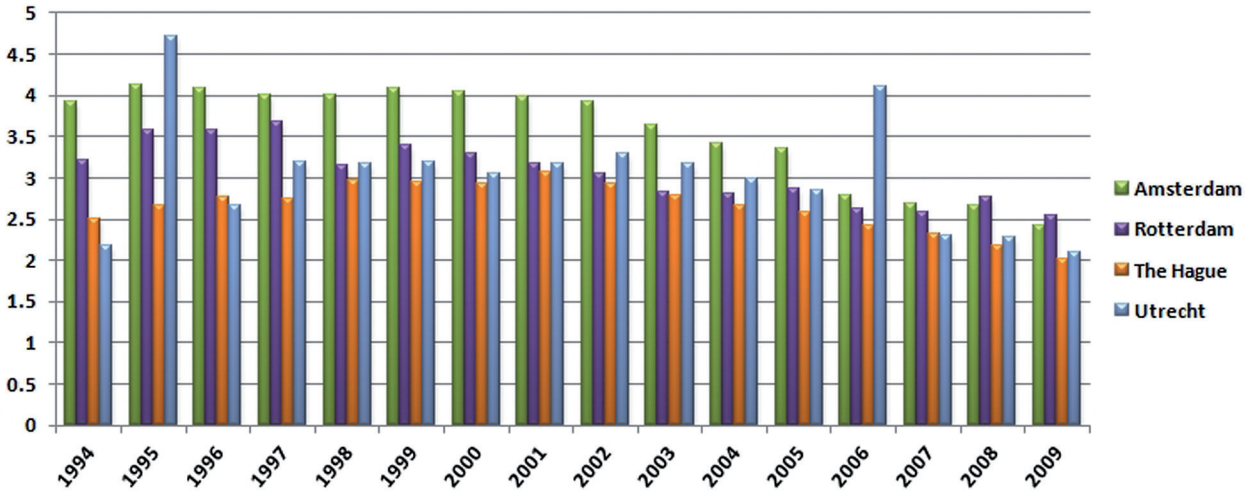


Fig. 4. Average number of full-time employees (fte) per firm in the creative industry for the four metropolitan areas (1994 = 100).
Source: Kourtit et al. (2012a).

The Hague, and Utrecht. This more in-depth investigation led to the following results:

- There were significant differences in growth rates of the creative sector in the four big cities.
- All subsectors of the creative industry in the four big Dutch cities still grew faster than the national average.
- The birth of new firms in the creative industry took place predominantly in the big cities.

Some further statistical results are represented in Figures 1–4. These results speak for themselves.

## 4. Spatial distribution of the performance of creative sectors: a data envelopment analysis

It has been extensively argued in the previous sections that the creative industry is a heterogeneous sector, with a multiplicity of varied branches and firms. These firms are different in terms of size, market coverage, labour intensity, productivity and business performance. In addition, as shown in Section 3, their geographical location may show diversified patterns. This will be further analysed in Sections 4 and 5.

The aim of the present section is to focus on significant differences in the economic performance of creative firms. This business performance is measured here in terms of profitability, quality of goods and services, and commitment of the firm to strategic goals. For our analysis we used a sample of 60 firms in The Netherlands, subdivided into 19 large firms and 41 small and medium-sized ones (SMEs). Data were collected through extensive face-to-face interviews with firms' officials or executives. So, at the end we had extensive data on the efficiency of management of these creative firms. In addition, we had extensive information on their scarce inputs. The output-input ratio is of course a measure for the productivity or efficiency of a firm. The aim is now to make a comparative benchmark analysis of the business performance of these firms (subdivided into large and small firms).

The analytical instrument employed here to compare the performance of these creative firms is one from industrial organisation, viz. Data Envelopment Analysis, or DEA. This method has its origins in multi-objective optimisation theory and has found many applications in the comparative study of business organisations, in both the public and the private sector. The applications serve to compare the efficiency of decision-making units (DMUs) in quantitative terms using a non-parametric deterministic approach. In Kourtit & Nijkamp (2012) the following brief exposition can be found on the essence of DEA: "DEA has quite a long history, mainly dating back to the seminal article of Charnes, Cooper and Rhodes (1978), and is therefore often referred to as a CCR analysis. The main idea is to determine the quantitative distance between the input position of a given DMU and the production possibility

frontier (i.e. the efficiency frontier) formed by the input profiles of all DMUs under consideration. If the DMU concerned is located on this frontier, its efficiency is 1; otherwise, it falls in between 0 and 1. This standard DEA approach, based on input efficiency, is usually called the CCR-I model. Clearly, one may also analyse the output efficiency, which is just a complementary operation. In the CCR-I model, a DMU may become more efficient by reducing its inputs for a given output vector (or, alternatively, by increasing its outputs for a given input vector). It is clear that DEA has a close resemblance to multi-objective programming (see Golany, 1988). How this improvement of efficiency may be achieved depends on the distance function between the input profile of a given DMU and the efficiency frontier. In addition to a standard radial distance function in the CCR-I model, alternative distance functions have also been proposed in the literature, viz. a context-dependent (or stepwise improvement) distance model (see Seiford and Zhu, 2003), a distance friction minimisation model (see Suzuki et al., 2010, 2011), or a mix of both approaches (see Suzuki and Nijkamp, 2011)."

A next step in DEA modelling is the use of super-efficiency DEA, which is explained as follows in Kourtit & Nijkamp (2012): "The super-efficiency notion seeks to arrive at a complete ranking in terms of amended efficiency rates for all firms (meaning a differentiation among efficient firms with an initial score of 1). It successively eliminates (one by one) each firm from the efficiency frontier, and then measures the new distance from that firm to the adjusted production possibility frontier. If the distance is small, then the super-efficiency is also small, and vice versa. A good exposition on super-efficiency can be found in Anderson and Petersen (1993), who have laid the basis for super-efficiency analysis in order to get a complete ranking of all efficient DMUs. This approach was subsequently remodelled by Tone (2001, 2002) into a slacks-based model. The efficiency scores from their super-efficiency model are then obtained by successively eliminating the data on the DMU to be evaluated from the solution set. For the input model this can result in efficiency scores which may be interpreted − according to the DMU position – as a numerical ranking of super-efficient DMUs. Such values are then used to rank all efficient DMUs; this operation may lead to efficiency scores above 1. The super-efficiency model is therefore suitable to find unambiguously the highest performing DMUs, i.e. those having a score above 1". The standard DEA as well as the super-efficient DEA will now be applied respectively to the set of 19 large creative firms and 41 creative SMEs in our sample in Figures 5–8.

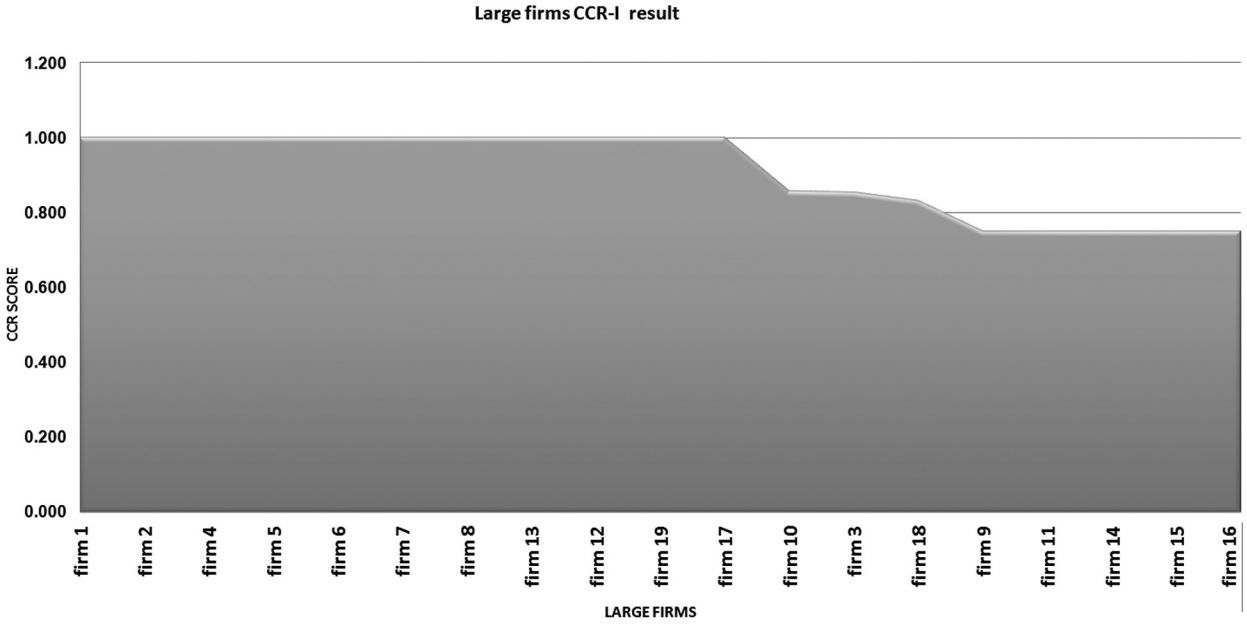


Fig. 5. Standard DEA (CCR-I) scores of large creative firms (2008).

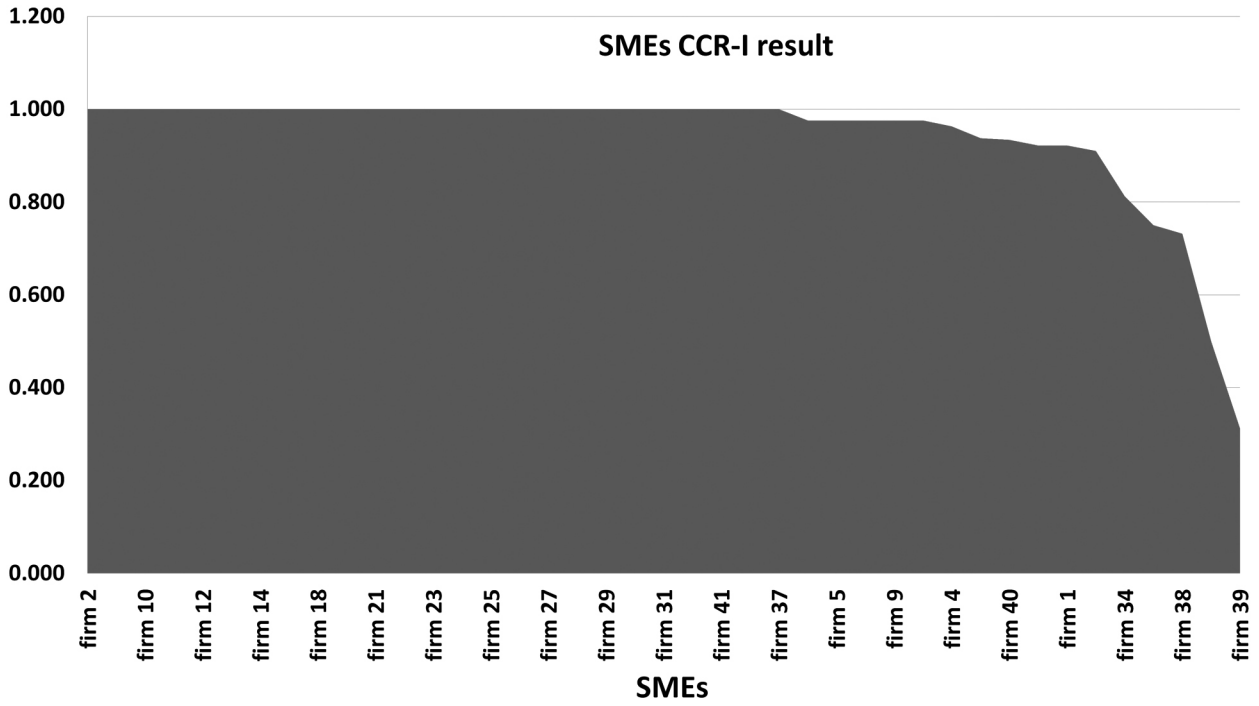


Fig. 6. Standard DEA (CCR-I) scores of creative SMEs (2008).

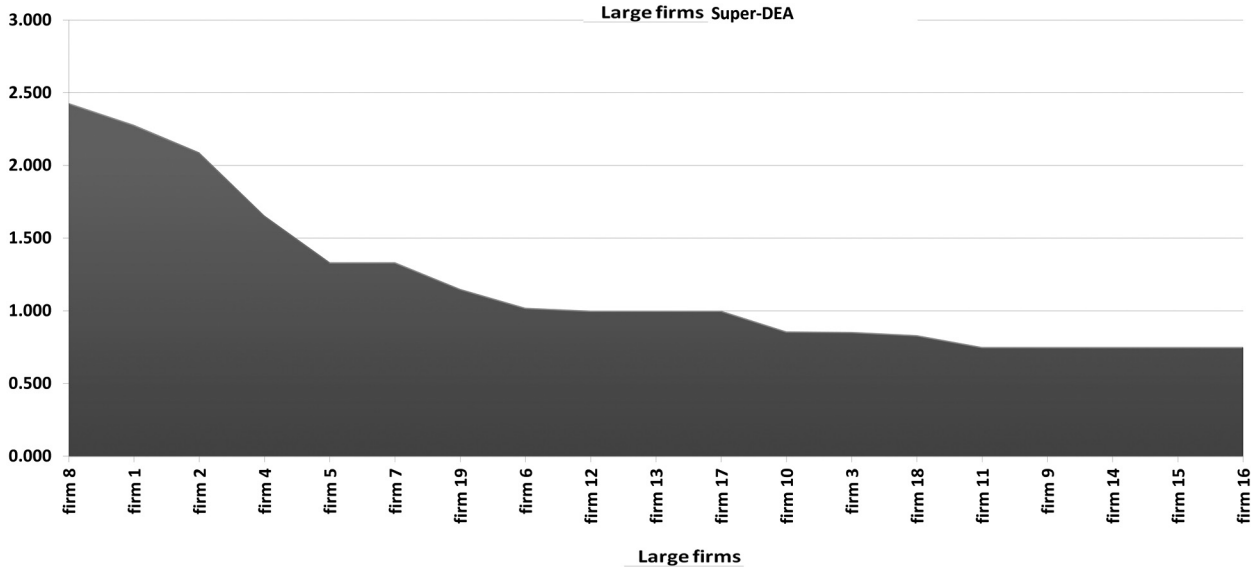


Fig. 7. Super-efficiency scores of large firms (2008).

Figures 5 and 6 present the empirical outcomes and show a reasonable stability in the relative efficiency level and scores of the performance of the 19 large creative firms and 41 creative SMEs in our sample in 2008. Efficient DMUs (with a score of 1.000) – i.e., the most efficient large creative firms and creative SMEs producing a high performance (output) with a minimum of inputs – were found in 11 large creative firms and 25 creative SMEs. They outperform all other firms in our sample through their high – but identical − relative efficiency scores of 1.0.

However, by applying a super-efficient DEA model based on a ranking of efficient DMU firms (i.e. 'high performance firms') to identify from their set a subset with a super-efficient score higher than 1 (i.e. 'winners'), a clear difference in the performance of those large creative firms and creative SMEs can be observed (Figures 7 and 8). From Figures 7 and 8, the rankings of super-effi-

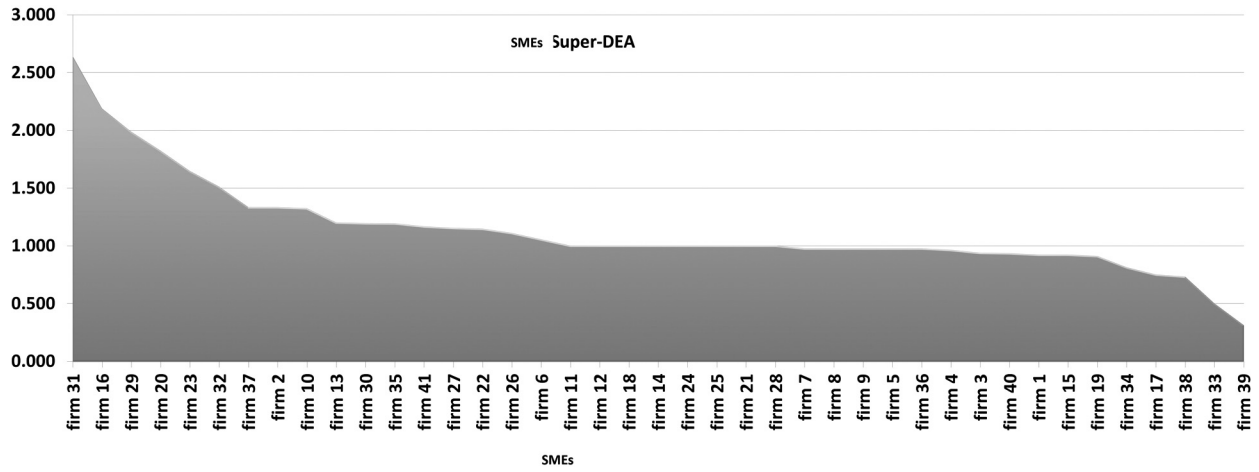


Fig. 8. Super-efficiency scores of SMEs (2008).

ciency values for 8 of the 19 large creative firms and 17 of the 41 creative SMEs were established on the basis of their high super-efficiency score. It is noteworthy that in our empirical analysis the creative large "*firm 8*" and the creative SME " *firm 31*" are the 'winners' based on the super-efficiency model employed.

## 5. A comprehensive perspective on the spatial distribution of creative sectors: a 'Flying Disc' multilevel model

In the previous section we focused our attention on a comparative analysis of the business performance of firms in the creative sector. In the present section we will investigate whether the location of these creative firms matters for their business performance. This calls for a rather comprehensive analysis of the firm-specific (intra-firm) drivers of economic performance as well as of their locational moderator variables (associated with favourable seedbed functions for creative enterprises). In this context, also network linkages between creative firms play a critical role. This has prompted the design of an integrated conceptual model coined the 'Flying Disc' model (see Fig. 9).

According to Kourtit and Nijkamp (2012), "The 'Flying Disc' model serves as a strategic navigation instrument that maps out main directions in a comprehensive micro-meso framework, which includes an integrated set of essential locational factors (inputs) in core geographical zones, as well as linkages that determine a firm's micro-business performance (outputs). This framework is a tool to evaluate and rank the comprehensive performance of firms in the creative sector, provided that detailed assessments of geographical and urban determinants are available. These determinants are at the core of the 'Flying Disc' model that encompasses prominent input factors which are of decisive importance for the firm's performance (output)".

This conceptual 'Flying Disc' model can be transformed into an operational measurement model (using actual data) in the following way (Fig. 10).

To estimate the model presented in Fig. 10, we use a Structural Equation Model (SEM). This is essentially a combination of regression analysis, path analysis and confirmatory factor analysis. The SEM used in our study has the following constituents: a super-efficient DEA analysis of the firms concerned (***SEC***), in relation to centrality in geographical space in The Netherlands (***CGS***) (viz. Randstad, Intermediate Zone, and Periphery) − and/or urbanisation levels (***UBL***), complemented with firm size (***FS***) and the implementation stage of the Strategic Performance Managment system (***SPM***). In this way, we are able to produce a comprehensive econometric estimation of the creativity-region nexus. Thus, our model is constructed to identify and estimate the following structural relationships between these factors:

$$SEC = f\,(CGS,\ UBL,\ FS,\ SPM) \qquad (1)$$

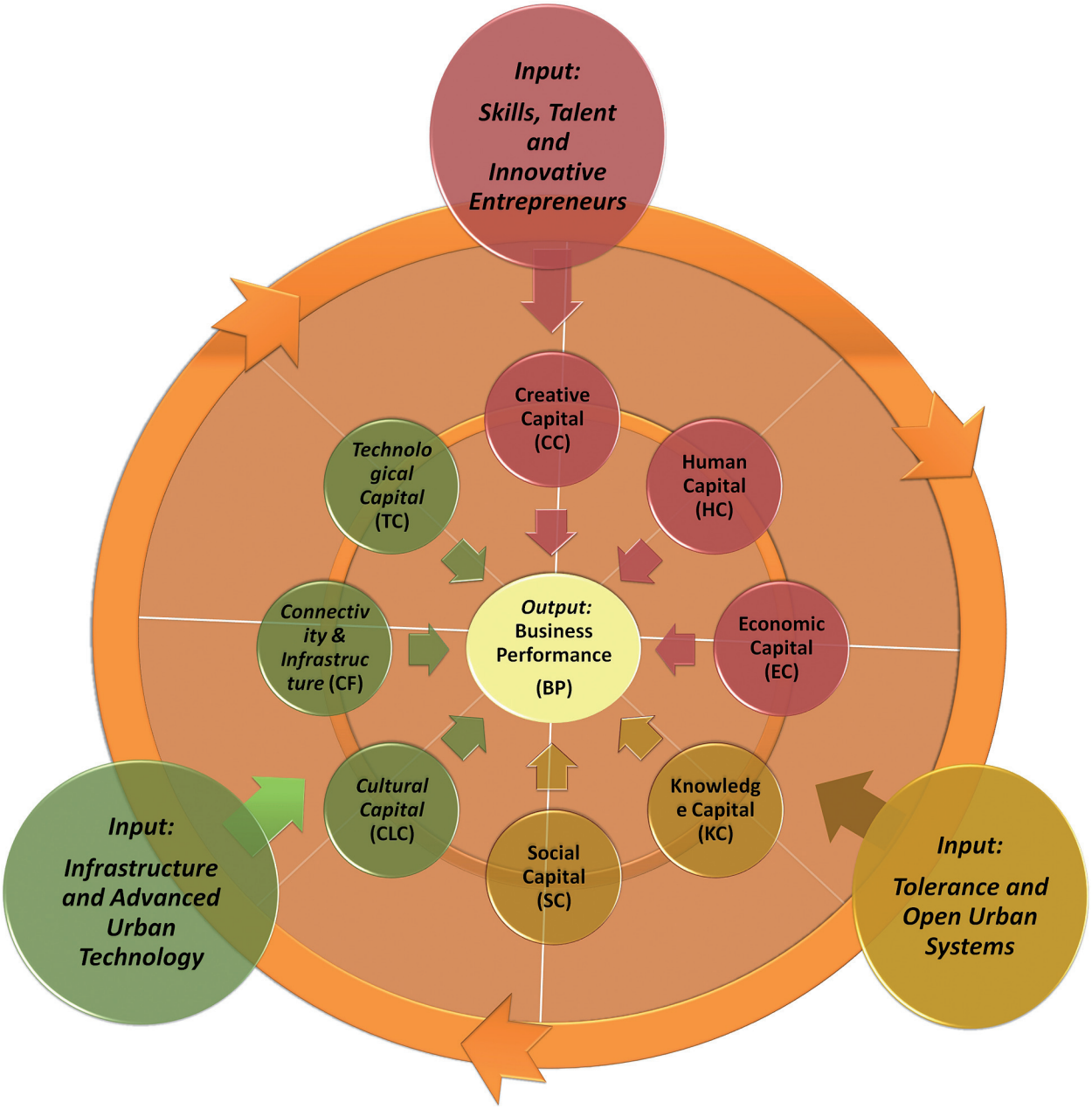


Fig. 9. Architecture of the 'Flying Disc' model of firms' business performance in geographical space.

where:
***SEC*** – super-efficiency DEA score;
***CGS*** – centrality in geographical space ;
***UBL*** – urbanisation levels;
***FS*** – firm size;
***SPM*** – maturity of the SPM system.

A clear assumption in model (1) is that the firms' operational efficiency (***SEC***) depends not only on the specific geographical areas *(**CGS*** and /or ***UBL**)* where they are located (with available and supporting geographical and urban resources) and where they can benefit from these external economies. Also, a firm's degree of SPM implementation (***SPM***) and its size *(**FS**)* appear to influence the success of its businesses performance and its operational efficiency.

Figure 11 presents the empirical outcomes of our SEM model[1]. The findings show that the structural model is able to identify three significant relationships, namely a significant negative relationship between (i) super-efficiency DEA

[1] The software package used for estimating this SEM was AMOS.

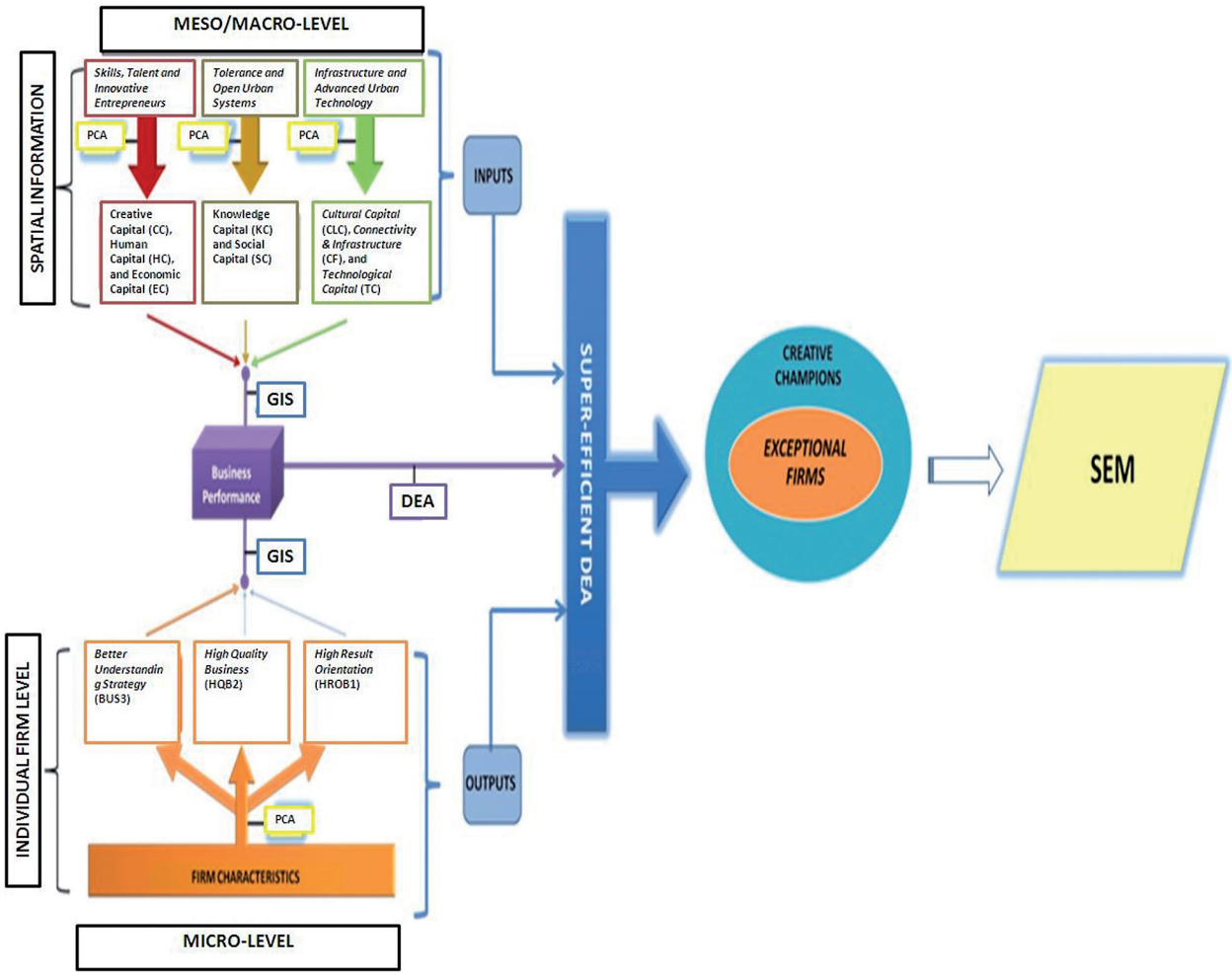


Fig. 10. Architecture of the measurement model.

values (***SEC***) and centrality in geographical space (***CGS***) (-.386; p-value < .001); (ii) a significant positive relationship between super-efficiency DEA values (***SEC***) and the maturity of the SPM system (***SPM***) (.281; p-value < .001); and (iii) a significant negative relationship between super-efficiency DEA values (***SEC***) and the level of urbanity (***UBL)*** (-.051; p-value = .087) at an α-level of 0.1. Finally, the relationship between super-efficiency DEA values (***SEC)*** and firm size (***FS***) was not found to be significant.

The final findings of our SEM model in Fig. 11 show that a higher super-efficient value of both large creative firms and SMEs is more positively related to the level of completeness of their SPM implementation compared with firms that are still in the process of implementing or introducing such a system, while this value is also influenced by geographical space in terms of centrality and urbanisation (density), with firms located

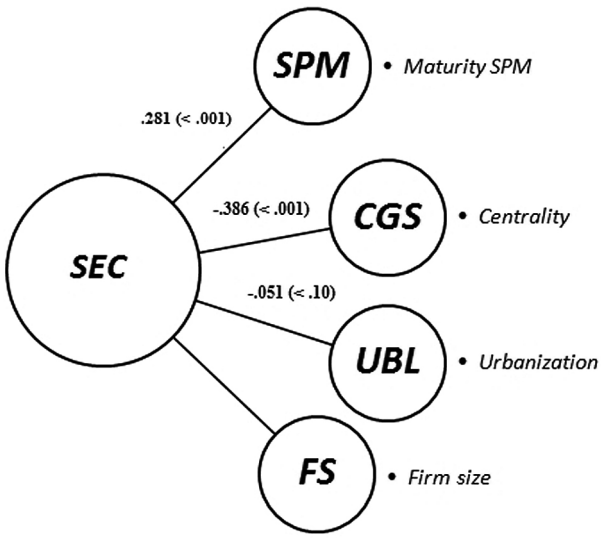


Figure 11. A path model for high-tech spaces and efficient firms.

Legend: The p-value is a test-statistic representing the significance level of the corresponding coefficient in this path model; if p<0.01 (case *a*), the relationship is significant at the 99% confidence level; if p<0.10 (case *b*), the relationship is significant at the 90% confidence level.

in the Intermediate zones or the Periphery being also more likely to have a higher super-efficiency DEA score.

This finding suggests that access to agglomeration and spatial economies as well as to available resources, knowledge and financial institutions, trade associations, and the like, do not dominate in a firm's location in the later stage of the SPM implementation process; firms tend to become more footloose and less dependent on place and distance (Kourtit & Nijkamp 2012).

## 6. Concluding remarks

The creative sector is not a novel economic branch of activity. It has existed since the early history of mankind. Artists, entertainers, scientists and inventors have always been the vehicles through which cultural and socio-economic progress was made. The novel element nowadays is that the size of this group has increased significantly, so that its share and contribution to societal welfare can be identified and measured. This emancipation of the creative sector has prompted a tremendous rise in the popularity and recognition of the importance of this sector. From a solitary activity it has become a broadly based economic sector.

Our research has tried to identify the spatial-economic nature of the creative sector, with a particular view to both the spatial genesis of this sector (which includes supporting geographical determinants of the origin and presence of this sector) and its spill-over effects (what other activities and what business performance may be expected as a result of this sector?). We have emphasised the critical importance of an appropriate analytical research apparatus (in particular, spatial econometrics, DEA and SEM) for estimating the drivers and system-wide impacts of the creative sector, at both regional and individual firm-size levels. It goes without saying that the creative sector will continue to attract profound attention of the research community and policy-makers in the years to come.

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