

## Distribution of Creative Firms in South Florida

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### Introduction

The theme of this conference – *making spaces for the creative economy* – provides a much needed intuition pump to more clearly articulate the creative city/class/economy signifier. The overall signifier is simply too loose to provide any real guidance for decision makers, planners or government officials. The overall signifier implies that the creative economy is more than culture. And, the plural of the word space implies that the creative economy is not a singular entity – that it is, in fact, composed of many different kinds of workers each needing different types of spaces.

On the surface, there appear to be three approaches within the “creative” signifier. These are: the creative city, the creative class, and the creative economy. The creative city idea is European in origin and is captured most precisely in the work and writing of Landry (2004). In this approach, there is also a close association with the definition of creative as cultural. The creative class idea is American in origin and is captured most eloquently in the work and writings of Florida (2005, 2002) and includes allusions to creative as both high tech and cultural, but particularly focuses on the former. The creative economy idea is due to Howkins (2001) and seems focused on fifteen industrial sectors including: R&D, publishing, software, TV and radio, design, music, film, toys and games, advertising, architecture, performing arts, crafts, video games, fashion, and art.

Practitioners often blur these approaches in two distinct ways. Little cognition is paid to the *geographic scales* associated with the original ideas: downtowns for the creative city, the aggregate workforce for the creative class, the “new” knowledge economy defined at the global level. Several examples suffice. Landry’s creative city applies to cultural quarters, not an overall city or metropolitan region. Florida’s creative class is formed at the scale of the individual knowledge workers and then aggregated empirically to the scale of the metropolitan area. To talk about the “creative city” when one means a district is misleading. To talk about the “creative economy” when one means attracting knowledge workers misses the point that one is attempting to build an economy – by capitalizing on vertical and horizontal agglomeration forces. Little cognition is paid to the *[economic] outcomes* of these approaches. This is particularly problematic for the creative city approach, where economic benefits are not well understood nor possibly realized (cf. McCarthy, 2005). Similarly, the creative class notion may or may not be a good indicator of growth (cf. Prospero, 2005).

Thus, there are many GAPS in this nascent literature. The two most glaring are the failure to consider the overall economic structure and the failure to consider how the multi-attributed creative economy arranges itself spatially within metropolitan areas. This paper begins to deal with these gaps by considering a range of economic activities at the scale of the urban region. I focus on the “within-region” variations of activities and “within-region” uses of space.

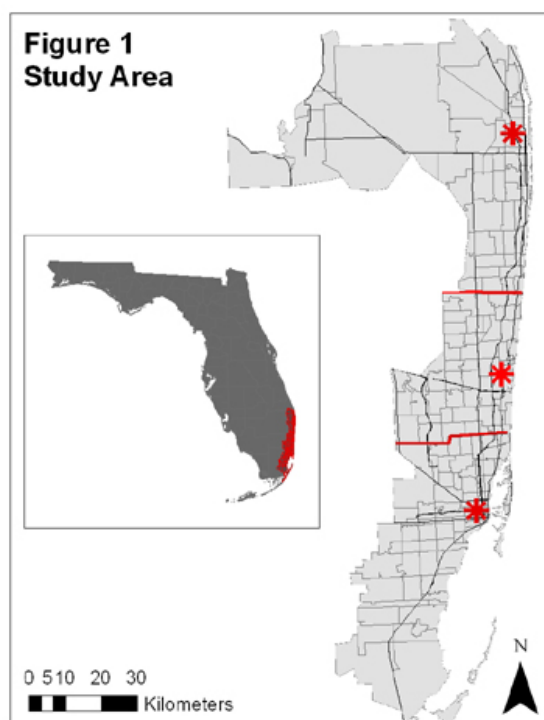
### *The Study Area – South Florida*

South Florida is a geographic space that consumes the Miami-Fort Lauderdale-West Palm Beach metropolplex (see Figure 1). The region extends approximately 130 miles from north to south, and approximately 25 miles east to west. It is virtually completely urbanized and built

out. Bounded on the east by the Atlantic Ocean and on the west by the Everglades, development patterns seem to be “folding back” eastward.

Politically, South Florida is composed of three counties – Miami-Dade, Broward, and Palm Beach from south to north and is captured statistically by three contiguous US census-defined metropolitan areas. Each county has its own government structures, planning staffs, economic development agencies, and particular sets of institutional arrangements.

The South Florida region had, in 2000, a permanent population approaching 5 million, which swells to over 9 million in “season.” Population density is highest in the south and along the ocean and decreases south to north and east to west. Each county has a principal city, but each is beginning to develop a multi-nucleated spatial structure. Transportation is generally easier from north to south.



The South Florida economy, describable in terms of industrial categories (NAICS Codes) and/or occupations (SOCS codes) consists, in aggregate of approximately 2 million jobs. Viewed with *industrial sector lenses* (March 2002 NAICS), the region had 1.9 million jobs, with the major industrial sectors by level of employment being retail trade (15%), healthcare and social assistance (13%), accommodation and food service (10%), and administrative support (10%). At the other end of the spectrum are the industrial sectors focusing on the arts, entertainment and recreation sector (1.8%), management (2.3%), and information firms (3.4%). Viewed with *occupational category lenses* (May 2003 SOCS), the regional economy consists of 2.2 million jobs, with major concentrations in retail trade (21.5%), office workers (12.7%), food preparation (8%), and transportation and material movers (7%). The smallest occupational groupings are in the occupations associated with “arts, design, entertainment, sports, and media” (ADESM) at .014%, architects and engineers at .014%, computers and mathematicians at .019%, and life, physical, and social scientists at .006%. [The difference between the two total employment numbers – 1.9 and 2.2 – does not represent growth. It is more of a difference in the nature of the two surveying techniques employed by different arms of the US Census.]

Table 1 shows high and low Location Quotients for both industrial sectors and occupational categories in the South Florida economy (using the US Economy as a whole for industrial sectors and 283 large metropolitan areas for occupational categories). While similar to the picture painted by considering levels of employment, the location quotient analysis clearly points out an industrial structure fueled by transportation, material moving, and wholesaling – due principally to economic advantages from multiple water and air ports. It also shows an occupational structure dominated by services. Of the industries that exhibit economic advantage, only administrative support can be considered “creative.” Of the occupations exhibiting economic advantage, only legal occupations are considered “creative.” None of the “super-creative” occupations emerge as regional strengths. Quite to the contrary, location quotients for super-creative occupations are all below 1.0.

Rank	Industry	LQ	Occupations	LQ
High	Real Estate	1.422	Protective Services	1.454
	Admin Support	1.307	Legal	1.329
	Wholesale	1.285	Social Services	1.307
	Material Moving	1.226	Building Maintenance	1.232
	Accommodation/Food	1.117	Personal Care	1.222
Low	Company Management	0.885	Production Workers	0.592
	Health Care	0.959	Scientists	0.639
			Architects/Engineers	0.696
			Managers	0.751
			Computers/Math	0.761
Culture	AER		ADESM	1.074

Table 1: Some Economic Characteristics of South Florida

### *Research Focus and Organization of Paper*

This paper is an empirical examination (discovery) of the magnitude and spatial arrangement of creative firms within the South Florida region. The paper is organized as follows. The next section provides a review of both the creative “city/class/economy” signifier and recent literature on the economics of firm location as well as recent attempts to empirically describe the intra-urban distribution of creative economic activities. The specific research problem is then identified – to understand and map the distribution of creative activities in South Florida – and methodological issues and strategies articulated. Results and analyses are presented for: (1) degrees of spatial concentration by firm type; (2) spatial patterns for four groups of employees: “all,” “business and legal,” “computer, architects, engineers, and scientists,” and “cultural and media”; (3) the film industry cluster; (4) the identification of empirically defined co-located firm types; and (5) compositional diversity of geographic sub-areas. The paper concludes with several overall conclusions and the implications of this research for both theoretical regional science and practicing planners.

### **Literature Review**

Three themes are blended here. The first two – more fully articulating the creative city/class/economy signifier and reviewing the theory and application of the notion an economic cluster – frame the discussion. The third theme -- variations in activity at the intra-urban scale -- provides eventual focus for the research problem. Indeed, the relative lack of detailed knowledge or attention to how creative economies behave at this scale is crucial. Most of the work to date focuses on where creative people live!

### *The Creative Signifier*

There is a distinct cross-Atlantic difference in the creative signifier. In Europe, most the attention has focused at the aggregate scale (Howkins, 2001) or at the scale of the cultural quarter (e.g., Landry 2004). Particularly in the latter, current attention is focused on sub-city districts (downtowns) and mostly on the “artistic” or “cultural” portion of the creative class. In the US, Florida’s (2002) creative class concept is formulated at the level of the individual worker, but measured at the scale of the metropolitan area.

All of these approaches offer only partial descriptions, perhaps exacerbating an already muddy level of understanding. Florida’s creative class idea is symptomatic: defined for **occupations**, he proceeds by reducing the conception of the overall economy to three parts – the creative class, the service class, and the producing class. Only the creative class is further partitioned – into super-creatives and merely creatives. Prospero, O’Brien and Richter (2005) came to a different conclusion when examining the overall occupational composition, vice Florida’s simple counting of just the creative class, of US metropolitan areas. Using a two-digit (major group) breakdown of occupations, the economy is describable in terms of six sectors that co-vary across inter-urban space. These sectors, with mixed composition of creative and non-creative workers are: Finance and Legal (F&L); Retail Sales and Services (RS&S); Construction and Installation (CON); Architects, Engineers, and Scientists (AES); Health Care (HC); and Public Services (PS). It is clear that the creative economy or the creative class is NOT a unitary economic force and as such, it must be partitioned and the characteristics of its parts – of workers, of spatial needs, of economic importance – need to be articulated more particularly.

Most of the research on the creative class occurs at the inter-regional or metropolitan scale. Typical studies include comparative studies of creativity and entrepreneurship (Lee, Florida, and Acs, 2004), the ability of the creativity class to predict economic growth (cf., Marlet and Van Woerkens, 2004), and discussions of whether it is creativity or more general human capital that is the economic engine (cf., Glaesner, 2004).

On the other hand, there is a paucity of research on the creative economy at the intra-region or intra-urban scale. Much of it is guilty of **scale mismatch problem** – the application of ideas created at one scale used randomly at other scales. The case of Austin, Texas is illustrative. Often touted as the icon of the creative class movement for its high values on the creativity index, more careful examination could yield an impression that there are many “austins” – from the bar district in downtown to the sprawling office parks housing high tech firms in distant and different counties, all within, however, the Austin-San Marcos metropolitan area. A more fully developed Austin case study would benefit from the insights gathered by Gibson, Murphy and Freestone (2002) in their study of the socio-spatial relations within the cultural economy in Sydney. Their findings are instructive: aside from general “urbanization economies” that clearly show that the cultural industry follows population, their figure 2 shows marked variations within the Sydney region for specific sub-sectors: recorded media manufacturing and publishing is located in both a “ring” around the downtown as well as in the western suburbs.

### *Economic Clusters, Location of Firms, and Urban Spatial Structure*

The concept of urban spatial structure is focused on the allocation of space to different uses, including economic activity. It has a rich heritage in urban design, economics, planning, and sociology. From each of these different disciplinary lenses, researchers and planners employ a series of remarkably similar analytical concepts and devices – including central city / suburb, monocentric versus polycentric regions, various districting schemes such as edge cities, office parks, loft areas, cultural quarters, downtowns, and others – to describe specific economic activities and changes in or within urban space. At a broad scale, these

techniques are used to help us understand how space is partitioned among uses and how these uses compete for use of specific parcels of urban space (in the tradition of Burgess, Hoyt, Harris and Ullman, Alonso). At the micro level, these concepts and devices are used to structure particular responses. The creative city focus on cultural quarters is illustrative, as are other economic or community development programs focused on place.

From an economic perspective, recent literature has focused on the theory of clusters. Cluster theory is not really new. Embedded within urbanization economies, cluster theory focuses on the twin concepts of vertical and horizontal agglomeration. Vertical integration (or vertical clusters) describe the situation in which all the firms that make up a product line are “integrated” – from raw materials, through production of parts, to final assembly, to sales. The automobile industry in the classic example; the more exotic, creative industries, like consumer electronics, is a more recent one. Horizontal integration (or horizontal clusters) describe the situation in which all the firms that are similar to one another at various stages are clustered spatially. Classic examples have focused on Silicon Valley and Hollywood, but the concentration of manufacturers of say, cell phones or any regional shopping center is a similar example.

The application of cluster theory to space (i.e., its economic geography) is probably due to the work of Scott and his sectoral studies of Los Angeles in the late 1980s. What has followed are studies too numerous to detail about the location of high tech firms and more recently artists.

Also arising from this work is renewed emphasis on the so-called agglomeration economies. The recent literature has extended the description of agglomerating economic forces by adding “knowledge” and “institutional” components. Maskell (2001), for example, describes knowledge “sharing” or “awareness” implying the continuing need for close proximity to vertical partners or horizontal competitors. Finally, the “government” component has now been added by discussion of the role of government in either forming or nurturing economic clusters, and is often the subject of many “how to” economic development handbooks (cf., Porter, 2002).

In conclusion, we have many signifiers and many examples of unique sectoral (e.g., Markusen, 2004; Scott, 2000) and unique spatial (e.g., Landry, 2000) solutions. What is less clear are specific understandings on intra-urban location preferences beyond the general broad generalizations, we still do not have firm understandings of specific firm types (other than the high tech and/or artists) at the urban scale. What is needed for planning purposes is to know how the various industrial sectors vary across the entire space and where there are concentrations of activity by industrial sector. For example, where are the engineering firms? Where, specifically, are the artists? Moreover, the description must go beyond the simple conceptions of space commonly used. It is not enough to say that high tech firms are in the suburbs and artists are in the inner city.

### **Research Problem**

The overall research problem is to examine the magnitude and distribution of (creative) firms within the South Florida region. I have bracketed the word creative, since these types of firms constitute only a portion of the overall economy and contain disparate types of activities and/or location preferences. The general expectation is that different spatial patterns will be identified for different types of firms. More specifically, I seek to develop and demonstrate useful ways of looking at the concentration or absence of different types of creative firms. I will look at this problem from both a vertical (types of firms) and horizontal (places) perspective.

## Methodology

Exploration for data to examine the within region variations of firm types eventually led to the use of zip codes and US Census Data. The data set developed consists of a matrix containing the number of firms by NAICS six digit industrial code (columns) by zip codes (rows), utilizing information from County Business Patterns, 2002 (this is latest data available). The matrix consists of 476 different firm types, representing all non-agricultural, non-construction, and non-manufacturing workers and 180 zip codes (79, 54, and 47 in Miami-Dade, Broward, and Palm Beach counties, respectively). The data does not include public administration employees.

Two measures are calculated to determine concentration or diversity. The first measures spatial concentration among zip codes by industrial category. This is simply the mean deviation, across zip codes, for each of the 476 industrial categories. The second is a measure of diversity for individual zip codes, defined in terms of Shannon's entropy statistic – shown as,

$$H = - \sum p_i \cdot \log p_i \quad (1)$$

This measure shows respectively how diverse a possible zip code is or not or whether a specific industrial type or types dominate the economic landscape of a particular place. The measure varies from 0 (perfect proportionality viz the entire region) to the log of p (the place is dominated by a single industrial type). Both measures are potentially useful to examine theory: for example, we would expect retail industries to be ubiquitous (low mean deviations), cultural industries to be concentrated (high mean deviations), downtowns to have higher degrees of specializations (higher entropy scores), and exurbs to have one of everything (low entropy scores).

Four measures are created to examine clusters. The first attempts to translate the industrial firm information to occupational classes, attempting to replicate the work of Richard Florida on the creative class notion. This is accomplished through a correspondence table (allowing for multiple assignment). The correspondence table allows an attempt to define, used herein, the merely creative BF (business and finance) economic cluster, as well as the "super-creative" CAES (computer, architects, engineers, scientists) economic cluster, and the ADESM (arts, design, entertainment, sports, media) economic clusters. The second cluster definition focuses on a specific industry, following the lead of Michael Porter and others in terms of such definitions. Here, I focus on the film industry, using data provided by Alonso (2005). Here, all industrial groups that theoretically are either vertically or horizontally associated with the film industry are assembled into an overall FILM variable.

The third and fourth measurement strategies rely on principal components analysis. First, the 476 industrial category variables are subjected to the data reduction technique in an attempt to identify any underlying economic spatial structure. This allows some discussion of similarities across firms of similar location preferences. Then, area estimates are produced for each of these non-theoretical, but empirically defined groupings.

It is of course, possible to map all 476 firm types. Below, I map aggregations as defined above (in terms of economic clusters). Aggregations are shown in a technical paper available for review.

## Results

### *Result 1: Concentration / Dispersion of Industry Types*

The most spatially concentrated firms are idiosyncratic or resource dependent ones such as racetracks or those related to ports. The most ubiquitous are those associated with retail.

Both are, arguably, non-creative. Within the general creative economy (defined herein as firms within NAICS categories 51-72), there are marked distinctions.

For example, NAICS 51 covers “information firms.” Within this industrial sector, the economic activities of publishing and sound are spatially concentrated, while communication firms are more ubiquitous. Places considering these types of firms must pay attention to the general (overall spatial structure) and specific (place needs) attributes of these types of firms. Conversely, spatial concentration also implies that not every place in an urban region will have a publishing “industry.” Similar results emerge within the other NAICS categories. For example, general banking is ubiquitous, while more sophisticated services such as securities and trust funds are more concentrated. The real estate industry (NAICS 53) is, almost as expected, ubiquitous, while more specific equipment rentals are more concentrated. Lawyers (NAICS 54) are concentrated, but legal support firms are spread out. Among the scientific or professional firms only surveying and mapping firms and industrial design firms are spatially concentrated. Within the management industries, those that use land as a factor of production are concentrated; other management firms are more ubiquitous.

*Result 2: The Distribution of Employment and Creative Activity*

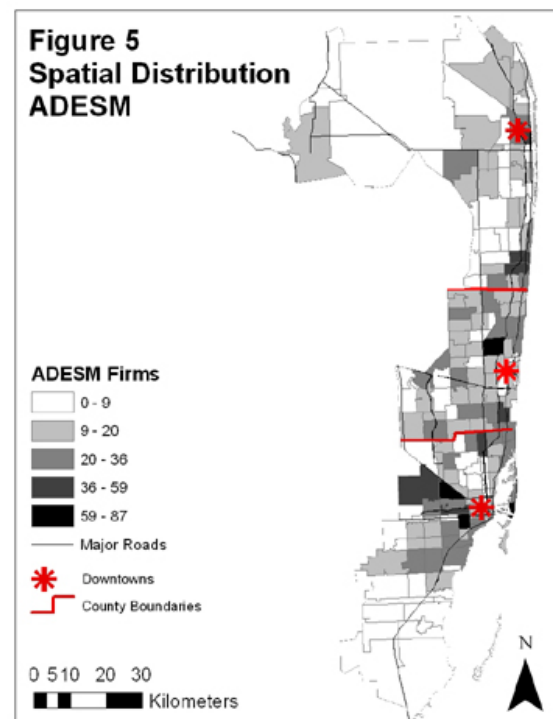
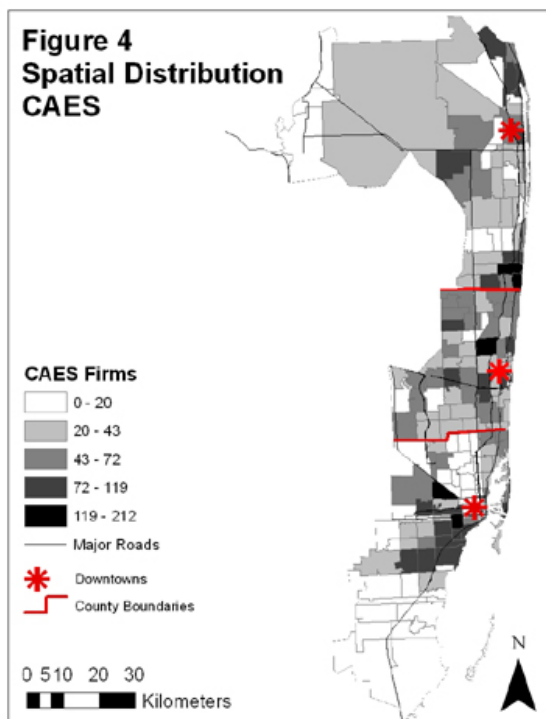
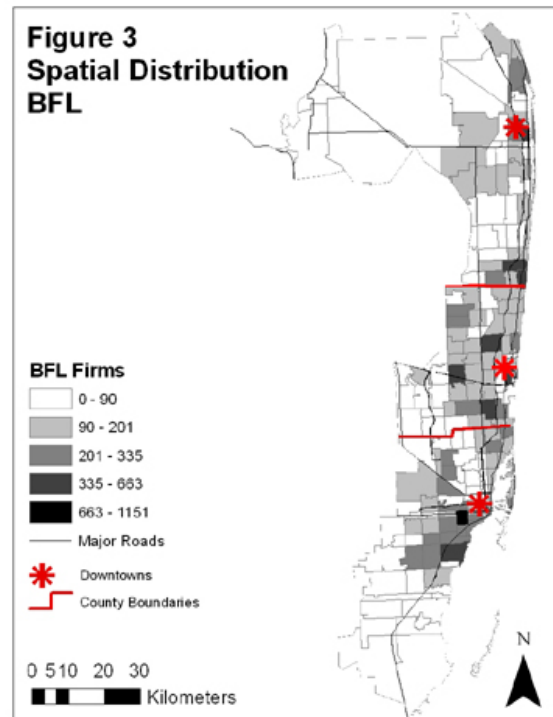
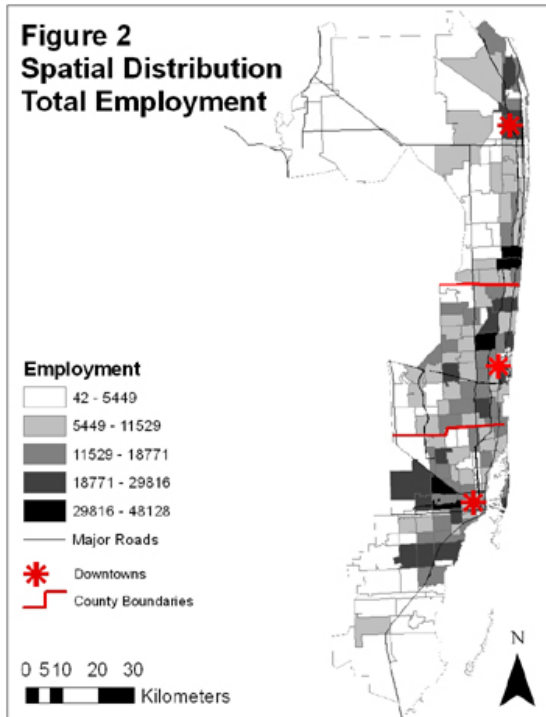
Figures 2 through 5 show the results of mapping both overall employment as well as three representations of creative economy clusters. The overall employment map (Figure 2) shows dense concentrations of employment in either geographic sectors or rings emanating from the principal downtowns (recall that public administration data are not included in the data set). The polynucleated spatial structure of South Florida is also evident, with both major and minor concentrations clearly evident. The influence of the highway is also evident as there is a visible north-south swath, following the principle highway system.

Figure 3 shows the distribution of business, finance and legal (BFL) firms, defined herein as all banks and related activities in NAICS codes 51, 54, and 56. This map again shows secondary “downtowns” – concentrations of office buildings, typical spaces for this type of firm. Here, again, polynucleated patterns emerge.

Figure 4 shows the distribution of firms that could be compared with the high tech “super-creatives” – the computer, architectural, engineering, and science (CAES) firms. CAES firms seem to have a split spatial personality. Two features on this map warrant further study. Clearly, some CAES concentrations are related to BFL concentrations, while others are unique.

Finally, the spatial distribution of the other super-creatives – the arts, design, entertainment, sports, and media firms – are shown on Figure 5. This group of firms is numerically dominated by the information (publishing) and media types of firms and therefore does not really represent “culture,” although downtown West Palm Beach emerges as a concentrated zone.

The major point of this map series is that they are DIFFERENT. While some zip codes have high concentrations of many types of creative firms, they are upon further inspection, more about one of these types of firms than another. And, there are zip codes where a single type of creative firm dominates. The results corroborate the theoretical notion above: that the creative economy is not a single entity: it is composed of many different types of firms each having their own set of location preferences and spatial patterns.





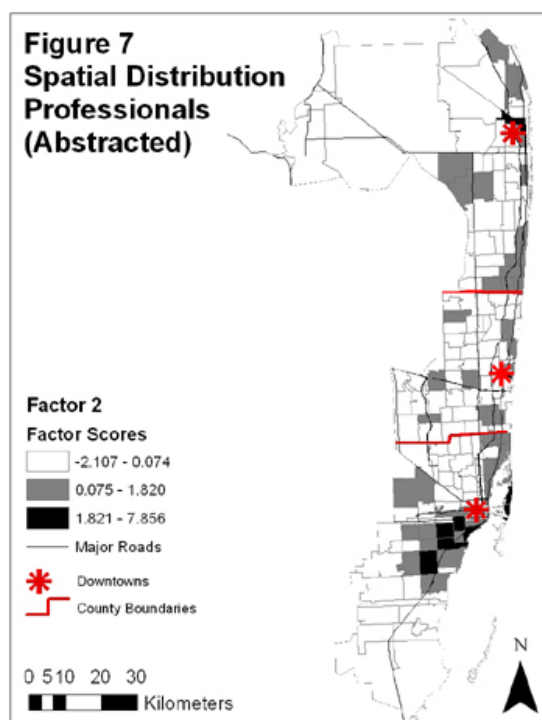
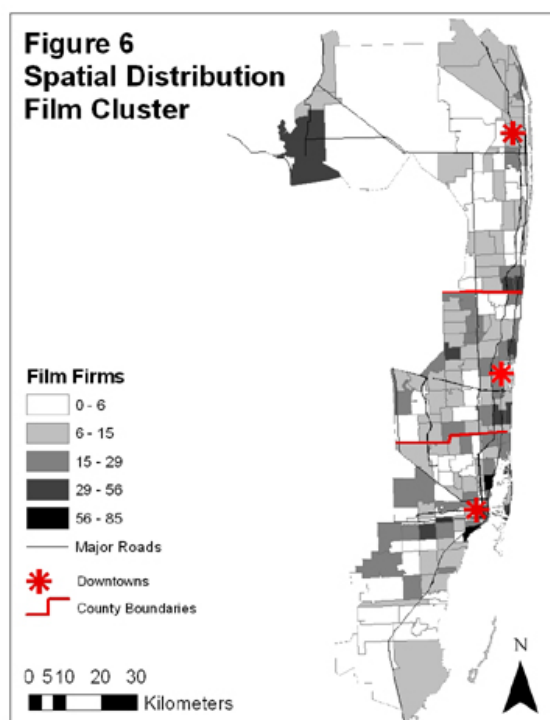
*Result 3: A Cluster Analysis of the Film Industry*

The film industry is one of the sexier “creative economies.” Alonso (2005) defined an economic cluster for the film industry in South Florida by simply adding up the number of firms by industrial type assumed to be part of either the vertical or horizontal agglomeration aspects. Figure 6 shows the geographic distribution of this film cluster variable. Clearly, this activity is highly concentrated in the Miami-Dade portion of the region. And, I have no clue as yet why there is stuff in Pahokee.

*Result 4: Empirically Defined Co-Located Industrial Types*

I performed two principal components analyses to examine the pattern of firm co-variation over the South Florida region. The first one used only the 21 major two-digit industrial categories contained in the NAICS coding system. Three distinct factors emerge: a general urban factor containing retail, schools, hospitals, food, and general services; an office factor containing information, real estate, banks, professional services, and corporate headquarters; and a manufacturing factor. These seem to corroborate standard models of spatial differentiation.

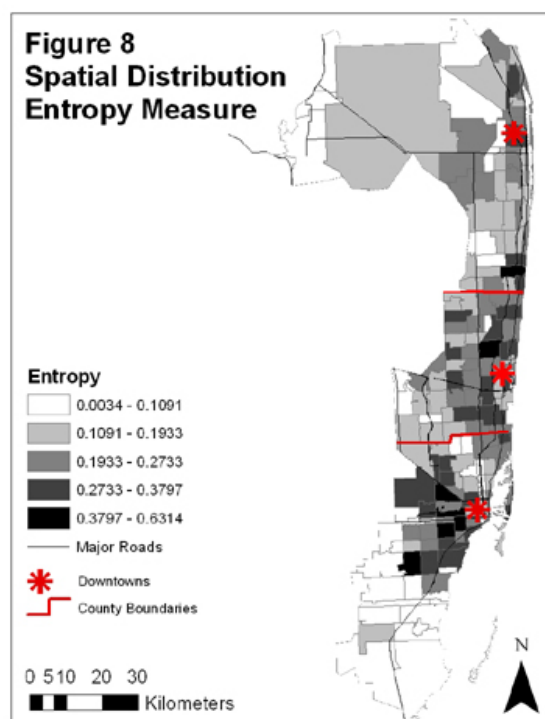
The second principal components analysis was performed for all 476 different industrial types in NAICS codes 42-81 (all non-manufacturing, non-construction, non-agriculture). Two general sets of results emerged. The first contains over 90 factors and seems to identify unique industrial types, such as racetracks. More realistic, perhaps, is the result that seems to converge (trying different rotation devices) on nine factors of co-variation. Though not perfectly clear, the nine patterns of variation are: (1) industry/wholesale; (2) professional; (3) medical/personal care; (4) banking; (5) retail; (6) communication; (7) construction/installation; (8) automobile; and (9) port activities and storage. What this means is that these nine different groups of similar firms exhibit distinct yet internally consistent spatial patterns. Figure 7 shows the spatial pattern of “professionals” using normalized spatially defined factor scores. The map shows areas of high concentration.



*Result 5: Zip Code Specialization: Entropy Analysis*

Here, I yield to the “district” mentality and look at the internal economic composition of zip codes. Figure 8 shows the mapping of Shannon’s entropy (diversity/concentration) measure for South Florida zip codes. The entropy values vary from between .0034 to .6314. Zip codes with a diverse economic composition (average number of everything) are located on the fringe of the urbanized area, in interstitial areas left over in prior development waves, and in poorer areas. More concentrated economic composition (higher than average proportions of at least one, and probably many sectors) are follow the overall employment map. What is particularly clear is the more highly developed economic structure of the older (in terms of time of massive settlement) areas, particularly in Miami-Dade County.

The three downs exhibit moderate concentrated values, averaging around .4. The statistic may suffer in this case from the lack of public administration employment. But, it also shows the lack of other forms of economic activity in the three major downtowns. Clearly, those places that have taken the opportunity to develop clusters of activity based on presumed agglomeration economies are not the “urban centers.”



*Summary of Results*

The five analyses clearly show the complexity of economic clustering across intra-urban economic space. Three major conclusions from this empirical exploration seem warranted. First, spatial differentiation by type of “creative economy” firm exists. The creative class is NOT; there are many types of creative firms. The principal components analysis seems to produce the notion that there are nine development patterns. Second, certain types of firms clearly benefit from clustering forces, while others do not. There seems to be a direct tie to placement in the production chain; the closer the product to the eventual consumer, the more ubiquitous. Third, there are sub-areas of the region that have strongly specialized economic compositions while others do not. The region is polynucleated and there appears to be some large differences in degrees of specialization, particularly in the southern portions of the study area.

## Conclusions and Extensions

Making spaces for the creative economy is not a single-barreled activity. Clearly, the creative economy itself is a diverse collection of activities and each part demands its own consideration. Specific strategies, which must rely on sound economic principles, must be formulated for each.

Not every place can become everything to all types of creative firms. Planners, in particular, need to be cognizant of the scale mismatch problem or “copying poorly.” The example of Austin, Texas is illustrative. While the Austin-San Marcos metropolitan area might score well on various indexes, the simple fact is that the City of Austin and the metropolitan area are not the same place. Understanding the role of a place within a larger regional context is a starting point, and understanding the dynamics of agglomeration economics (now at least five dimensions deep) would help even further. Even as I finish this paper, Scripps, a major bio-medical research firm is establishing facilities in the far northwest portion of the study area. Clearly “super-creative” this type of activity demands “campus-like” facilities.

The obvious extension from this empirical fact finding mission is to more closely study the actual facilities occupied by individual types of creative firms. What are the specific characteristics of spaces demanded by, say, the publishing industry or the sound recording industry? What are the specific characteristics of spaces demanded by professionals more closely tied to the consumer in the production cycle? What should be “corporate” looking or simply “back door” cottage places? Site visits and careful documentation of existing spaces would be a useful activity.

## Acknowledgements

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