Swedish Hospitality Industry Clusters

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1. **What is the project?** The study maps the hospitality sector and several attributes of it to illustrate the current locations of the industry across Swedish municipalities and regions. We also examine how the patterns in the sector have changed over time. After laying out the geographical landscape of the sector, the project also offers three in-depth quantitative analysis (via three separate academic articles). These academic articles address the geography of hospitality sector in detail. In this short report, we offer a selected part of our results. Extended material and further information on the articles are available through BFUF.

2. **What is Hospitality Industry?** The hospitality industry is a broad category of the economic activities within the service industry that mostly refers to the hotels and restaurant branches. Economic activities such as event planning, theme parks, transportation, cruise line, and additional fields within the tourism industry is indirectly also a part of the hospitality sector. The hospitality industry is a multi-billion dollar industry that is highly dependent on the availability of leisure time and disposable income of households.

3. **Why Hospitality Sector?** Today, the presence of hospitality services plays an important role both for urban and rural regions. Previous studies have shown that urban economic vitality is highly dependent on the existence of cultural activities, city amenities and concentration of service establishments. The traditional way of thinking about urban and rural economic development, as a product of 'land, labor and capital', is challenged by studies where the importance of consumption, amenities and culture for a region's attractiveness are emphasized. Urban public authorities, as well as actors in the private sector, have over the last decade started to develop strategies related to regional quality of life, in order to attract future residents, tourists, and conventioneers. To create vibrant places, with better and more diverse consumption possibilities, is considered crucial and adds to economic development in a number of ways. Several sectors of the hospitality industry, including restaurants and hotels, make up the foundation of the service industry and consumption in a region. As an economic activity, it is heavily dependent on the individuals working in the sector, which implies high employment opportunities in the economy. The sector is not only a good career domain, but also a stepping stone for youth and immigrant employment.

4. **What are the geographical patterns?** Table-1 displays the number of establishments and individuals employed in food and accommodation related services in Sweden in 2010 and the change in these figures from 2002. We see that the highest number of establishments is with the Hotels without conference centers for the hotel branch. Whereas Restaurants and mobile food service activities is placed at the top of the ranking for the restaurant branch with a significantly higher number employees and establishment than the rest of the sub-categories. The greatest percentage increase in the accommodation sector is for Youth hostels between 2002 and 2010. Youth hostels have become much greater in number but also larger in physical size since the number of employees has increased by an even higher percentage. The category Lodging activities of conference centers is the only accommodation category that has not experienced growth since 2002. For restaurants, two categories have exhibited an increase; Restaurants and mobile food services and Catering for schools, welfare and institutions. The other categories with available data, however, have decreased, both in terms number of

establishments and number of employees. Worth noting, however, is that since restaurants and mobile food service activities are the most dominant category by far, the restaurant-branch have enjoyed a significant overall growth between 2002 and 2010. An interesting development is with the Camping facilities. Until 2007, it didn't have separate industrial classification. Now with its own industrial categorization, camping sites are an upcoming form in the accommodation branch and important part of the hospitality sector at large.

Table-3: Number of establishments in different branches of accommodation and food services *(classified according to the Swedish industry categorization, SNI2007)*

Accommodation and food service activities SNI 2007	Number of establishments	% change since 2002	Number of employees	% change since 2002
Accommodation				
55101 Hotels with restaurant except conference centres	1372	20%	26278	16%
55102 Lodging activities of conference centres	269	0%	3824	-1%
55103 Hotels without restaurant	335	4%	3328	27%
55201 Youth hostels	313	102%	895	156%
55202 Other short-stay accommodation	443	*	1468	*
55300 Camping grounds, recreational vehicle parks, trailer parks	366	*	1438	*
55900 Other accommodation	7	*	23	*
Restaurants				
56100 Restaurants and mobile food service activities	17648	31%	93050	48%
56210 Event catering activities	591	*	1828	*
56291 Canteens	271	-28%	2173	-34%
56292 Catering for hospitals	10	-23%	415	-42%
56293 Catering for schools, welfare and other institutions	252	77%	2462	65%
56294 Catering for the transport sector	13	-8%	622	-3%
56299 Other catering	46	*	164	*
56300 Beverage serving activities	0	0%	0	0%

* Subcategory has changed since 2002. *Source: SCB*

In order to provide some brief understanding for the current geographical patterns in the Swedish hospitality sector, we mapped municipal and county (län) level data, which was retrieved from Statistics Sweden. The first map is created to exhibit the growth patterns of hotels and restaurants together across Swedish municipalities. The map is shaded based on the percentage changes in employment in hotels and restaurant between 2002 and 2010. Values represent the percentage of the working population that is employed in hospitality sector (hotels and restaurants). Looking at the percentages rather than absolute values allows us to understand the relative importance of these sectors in given municipalities. Darker green implies a higher percentage change whereas municipalities that are red are those that have experienced a decline in the share of hotel and restaurant employment. The municipalities that have either experienced an increase of 30 percent or more, or a decrease of 30 percent or more, are labeled on the map.
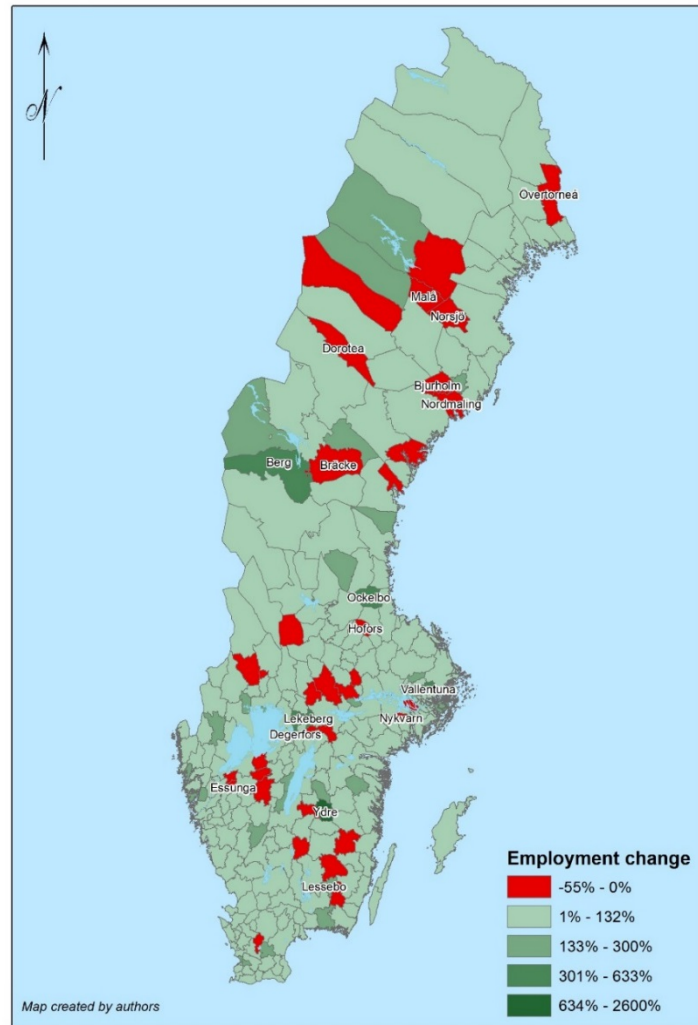
**Figure 1 –** Hospitality industry growth by municipality, 2002-2010

The map (figure-1) reveals a variation in the relative growth pattern of the sector across municipalities. Clearly, most of the regions have experienced a positive development (the municipalities with an extreme increase had very a very low overall employment in 2002 so the actual increase in number of employees is still not more than 50 people or so). But there are also a number of regions all over the country that have not experienced a similar level of growth, even though they are located close to some of the fast growing Swedish regions. Such finding is in line with the theoretical framework, which suggests that place-specific characteristics are crucial for successful hospitality industry clusters. Using this as a departure point, we look further into the facts and figures across different Swedish municipalities and regions to understand why those that are doing better/worse are doing so.

The second map (figure-2) captures the specialization of the Swedish hospitality sector at regional level. To do so location quotients for hotel and restaurant employment at the län aggregation level are used. A location quotient is calculated as follows;

$$LQ = \frac{Hotel\ \&\ Restaurant\ employment\ in\ municipality\ i/Total\ Employment\ in\ municipality\ i}{Hotel\ \&\ Restaurant\ Employment\ in\ Sweden/Total\ Employment\ in\ Sweden}$$

4

We use a location quotient to detect where and to what extent a specific industry is more (or less) concentrated than the national average. A location quotient above one implies that the respective industry is more concentrated in a region than what we would expect given its size and the national averages. A location quotient below one implies the opposite. Also, an LQ being higher than one implies that the sector in question is a *basic sector*, and if lower than one it is a *non-basic sector*. Basic industries in a locality is not only dependent on the demand in the very close proximity but also they export from the region and bring wealth from outside.

From the map in figure-2, we can see that only Gotland County, Jämtland County, Södermanlands County, Stockholm County, Dalarna County and Halland County have a LQ value higher than one. Such finding implies that across the 21 counties in Sweden, only these counties have a higher concentration of hotels and restaurants than the national average. Nevertheless, several other counties have values very close to one (the national average) while Kronoberg, Jönköping and Blekinge counties exhibit relatively low levels of hotels and restaurants concentration.
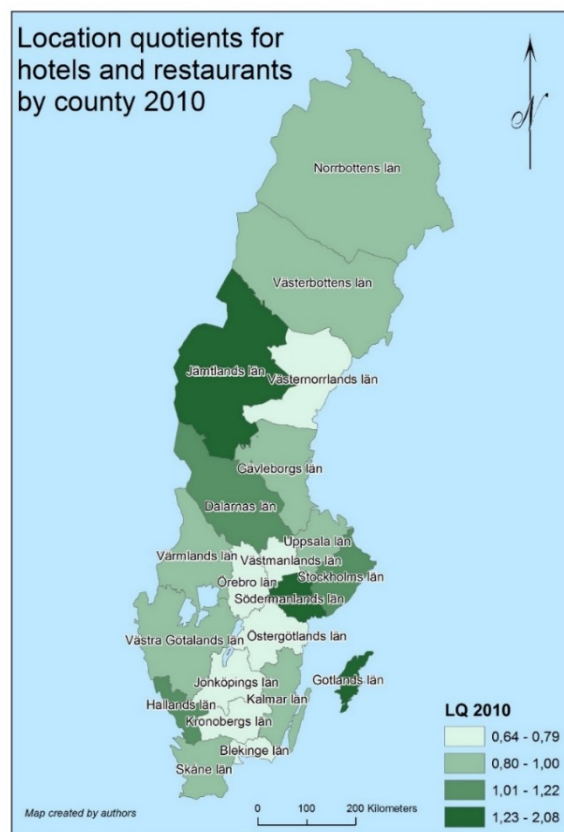
Figure 2 – Hospitality industry concentration across Swedish regions, 2010

5. **_RESTAURANT_ branch:** To have a better understanding of the geographical patterns in the hospitality sector, we split the sector into its two major branches: Hotels and Restaurants. Figure-3 represents a heat-map for all of the restaurants in Sweden in 2010. A heat map aids our understanding of major hospitality clusters in the country. It is not surprising to see that the three metropolitan areas, Stockholm, Gothenburg, and Malmö represents the major restaurant clusters together with other big cities. Simple logic is as follows: the bigger the city is, the higher the number of restaurants is.
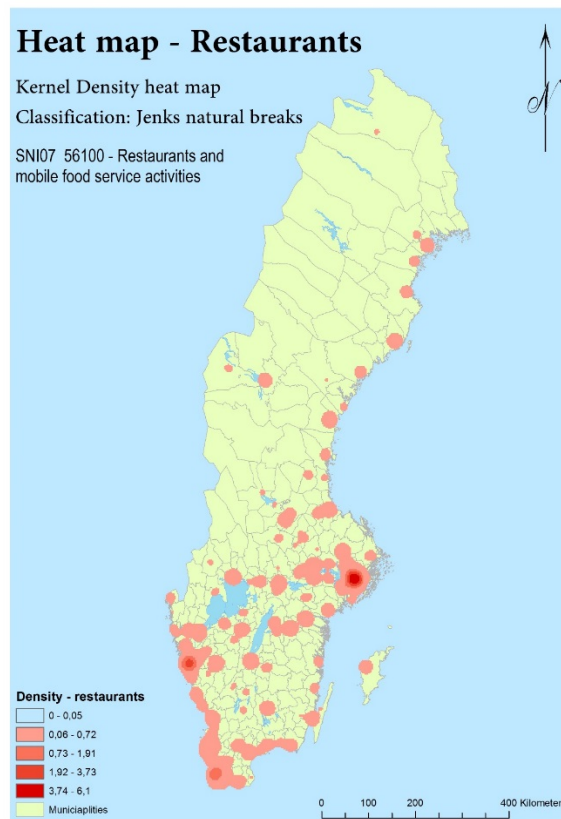
Figure-3: Heat map (clustering) representing the density of restaurants Sweden, 2010

However, the information that big places have more restaurants is not an interesting one. What is more interesting is to look at whether there are smaller municipalities with disproportionately large restaurant clusters: Places that are doing better than we expect given their size?

Figure-4 maps the location quotients (as described above), specifically for the _Restaurant_ branch (SNI56100). A location quotient represents the sectors relative concentration with respect to all other economic activities and country averages rather than the absolute values. It is the relevant importance of restaurants in a given municipality with respect to the scale of overall economic activities in the same location.
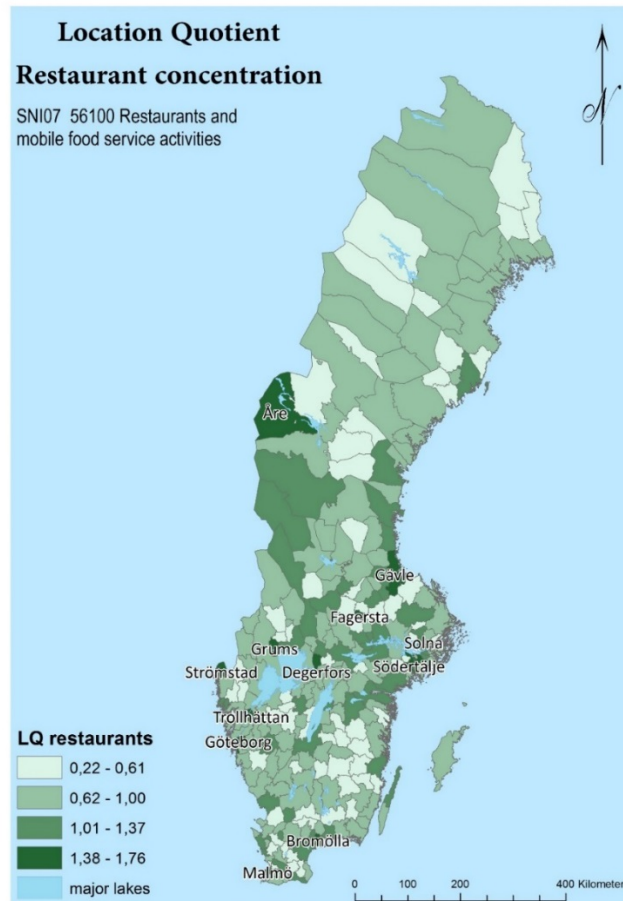
Figure-4: Location quotients for Restaurants (relative restaurant concentration)

In the previous heat maps showing the major hospitality clusters in the country, we see that the clusters are over-represented in the southern part of the country. However, when we look at the relative concentration of restaurants, we see a totally different picture. It can be observed that the municipalities that represent a higher concentration with respect to country average are rather scattered across the country. Tourism spots like Åre (which also attract cross-border consumers from Norway) are particularly doing well.

A ranking of the Swedish municipalities according to their respective LQs for restaurants show the following top and bottom 15 municipalities -seen in Table-2. Some of the municipalities that are ranked in the top 15 (and bottom 15) appear to be over-performing (under-performing) in terms of the relative importance of the restaurant branch due to statistical regularities. The majority of the municipalities that are listed on the right-hand side are large in physical size and small in terms of the size of the local economy and population, which implies a relatively lower density. The majority of them are also facing a lack of proximity to big and central markets.

Table-2: Swedish municipalities ranked with respect to restaurant concentration

Top 15 Municipalities with highest concentration of restaurants			Bottom 15 Municipalities with lowest concentration of restaurants		
	Municipality	LQ		Municipality	LQ
1	Åre	1,76	1	Essunga	0,22
2	Älvkarleby	1,67	2	Ydre	0,24
3	Degerfors	1,56	3	Bjurholm	0,27
4	Bromölla	1,55	4	Övertorneå	0,30
5	Göteborg	1,54	5	Kinda	0,31
6	Strömstad	1,52	6	Sjöbo	0,35
7	Södertälje	1,51	7	Krokom	0,36
8	Sundbyberg	1,48	8	Ånge	0,39
9	Botkyrka	1,48	9	Sävsjö	0,39
10	Grums	1,46	10	Hörby	0,40
11	Solna	1,43	11	Överkalix	0,41
12	Gävle	1,41	12	Ekerö	0,42
13	Fagersta	1,40	13	Emmaboda	0,42
14	Trollhättan	1,39	14	Valdemarsvik	0,42
15	Malmö	1,39	15	Lekeberg	0,43

Ranking for the Top 15 municipalities reveals three clear patterns; the municipalities that are ranked high in terms of restaurant concentration are (i) either touristic destinations, (ii) or high in immigrant share, (iii) or in close proximity to large markets. Municipalities that are known to be doing well in terms of tourism owe their high restaurant concentration to the share of the consumers and their potential demand that originates beyond the municipal borders. In the case of municipalities with high immigrant share, the labor market structure, as well as the small actors in the sector are driving the high concentration levels. In some cases, we see that the reason for the high concentration may be due to these municipalities being located in the periphery of large local labor market centers, where they often function as residential areas for commuters.

The map in Figure-5 is shaded with respect to the share of restaurants in Swedish municipalities in relation to the share of restaurants in the surrounding municipalities. It depicts a clustering and outlier analysis of restaurants by the calculation of the Anselin Moran's I. What we are looking into is the share of total establishments in the municipality that corresponds to Restaurant branch, implying a size adjusted measure. In the map (figure-5), a municipality colored in RED (high-high) has a high share of restaurants while the surrounding municipalities also have a high share of restaurants. A municipality colored in YELLOW (high-low) also has a high share of restaurants in the municipality, but the surrounding municipalities have significantly low number for restaurant share on the contrary. The municipalities colored in light blue (low-high) represent municipalities with a low share of restaurants whereas surrounding municipalities have a higher share of restaurants. Finally, a municipality in BLUE (low-low) has a low share of restaurants and surrounding municipalities also have a low share, but not as low. Using Moran's I is a common practice to detect spatial dependencies. The high-high municipalities, as well as the high-low municipalities, are listed on the right-hand side in Figure 6.
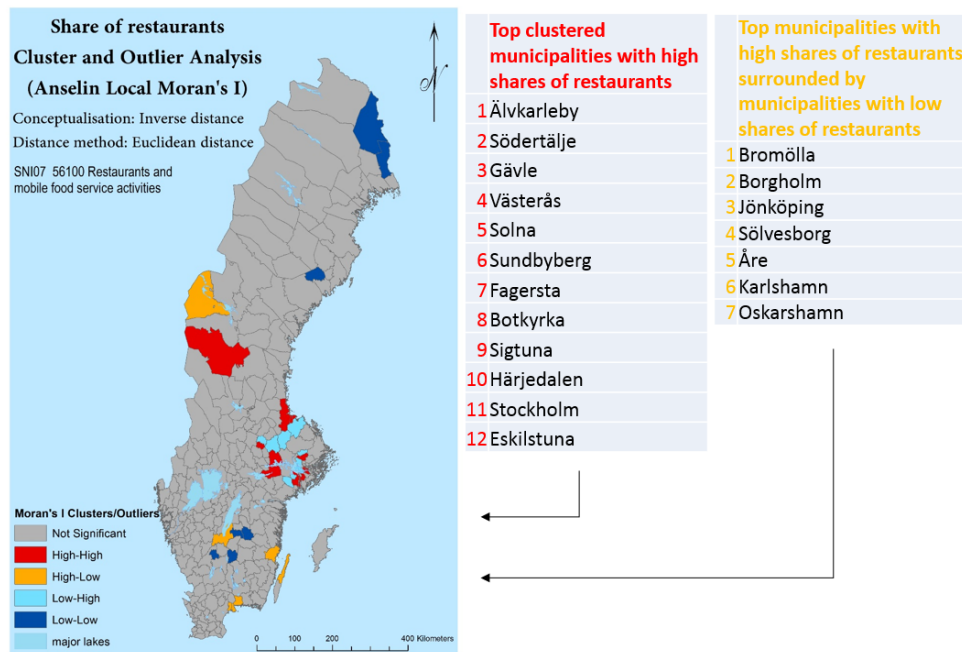
Figure-5: Local Moran's I for Swedish municipalities for share of restaurants, and respective municipality rankings

The simple way to read such a map is as follows: Municipalities colored in red are doing well in restaurant branch while their neighboring municipalities are also doing quite well. Whereas with the yellow municipalities that are listed on the right-hand side, we see successful municipalities that are surrounded by not equally successful municipalities. Once again, what we are looking into is the share of restaurants, so it is a relative measure with respect to the size of these municipalities.

The majority of the municipalities with high shares surrounded by municipalities with high shares are located in and around the Stockholm region. An interesting finding reveals itself when we look at the list of municipalities that have high shares of restaurants that are surrounded by municipalities with low shares: Bromölla, Borgholm, Jönköping, Sölvesborg, Åre, Karshamn, Oskarshamn. These are the municipalities that have a higher share of restaurants than what we would expect given the low level of shares in the municipalities surrounding them. Despite being one of the smallest cities in Sweden, Borgholm serves as the central city in Öland. It is one of Sweden's historical towns with a former city status. The city is best known for its once-magnificent fortress that is now ruined. The Swedish Royal Family has its official summer residence at the Solliden Palace a couple of kilometers outside the city-centre. The Crown Princess Victoria's birthday is annually celebrated on July 14 at the Borgholm Sports Field. Sölvesborg is a locality and the seat of Sölvesborg Municipality in Blekinge County, and the city relies on work commuters and small scale industries, as well as tourism. Åre is one of the leading Scandinavian ski resorts situated in Jämtland County. Karlshamn, likewise, attracts visitors to the salmon fisheries in "Mörrumsån", to the rocky coastline and the Hällaryd archipelago and the wooded hinterland. East of the city center the famous Eriksbergs Viltpark is located. It is an old farmstead with surrounding land now host to a variety of native animals such as European Bison, Crown Deer, Moose and wild boar amongst others. Tourism peaks in June–August, when there are regular boat connection and accommodation service to islands like Tärnö. In the port of Oskarshamn, which is used to be one of the historical trade centers, there are tourist boats today that take visitors to the island and national park Blå Jungfrun. There are also boats that cruise the

coastal waters closer to Oskarshamn. Within the municipality, there is the Oskarshamn archipelago that consists of over 5 000 islands and small islets. Jönköping municipality, being a logistic hub, is also the central location in its respective county attracting people from other smaller municipalities in the same region. The picture with the Anselin Moran's I scores suggests that municipal dependencies are not very evident in the restaurant business, implying the need to work on a finer geographical aggregation.

One can take a magnified look into the geography of restaurants. We have done so for certain parts of the country as an example. To give a sense of how the geographical variation looks once we zoom in, we present a cluster and outlier analysis in figure-6 below, where the Luc Anselin Moran's I has been calculated this time for the neighborhoods (SAMS) of the Stockholm region. Central Stockholm consists of neighborhoods with a number of restaurants that is statistically higher than its surrounding neighborhoods. The same is true for some other neighborhoods that are fairly further away from the center. Reimersholme, Karolinska Institutet and Södra station are low-high (light blue) neighborhoods, which means they have a very low number of restaurants but are surrounded by neighborhoods with a high number of restaurants.
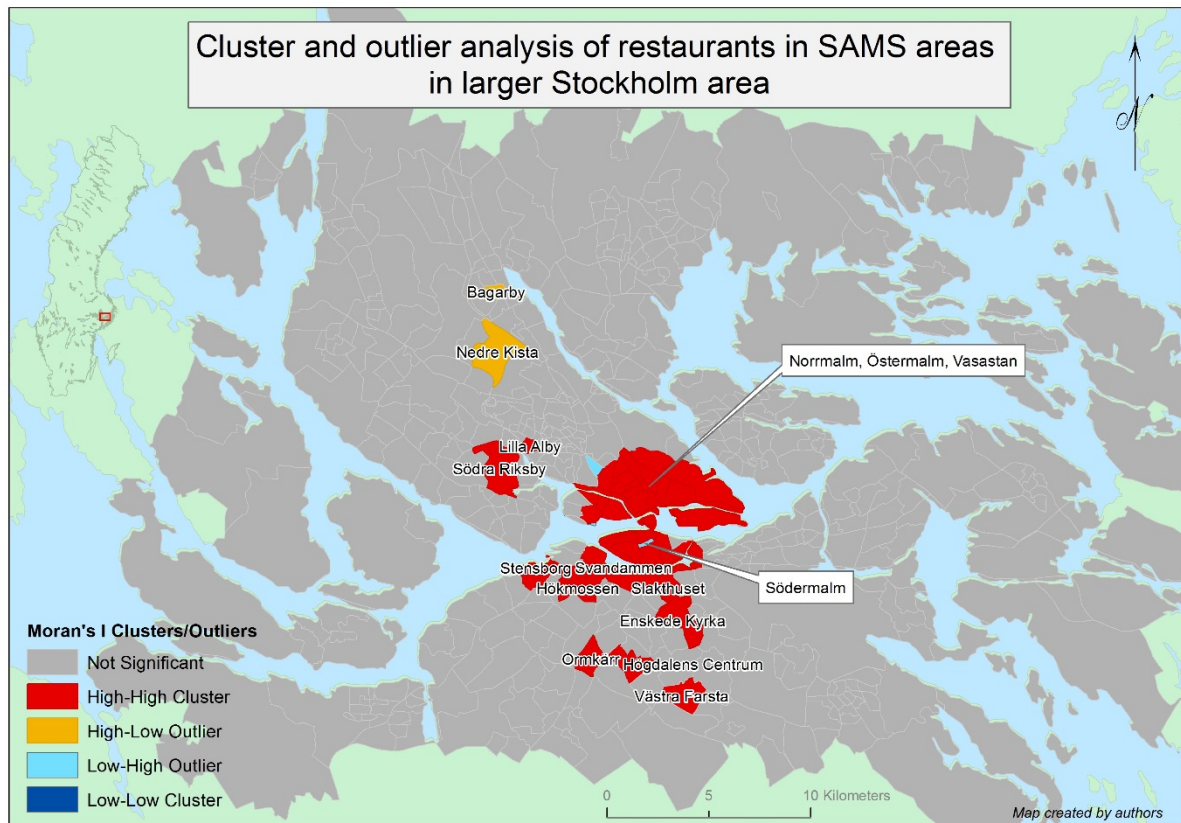
Figure-6: Cluster and outlier analysis for Swedish restaurants across SAMS areas around Stockholm

6. *HOTEL* **branch:** We repeat the same empirical practice with the location quotients to observe the relative sector concentration for the hotels across Swedish municipalities. Figure-7 maps the location quotients obtained for the hotels in Swedish municipalities. It is followed by a top15 and bottom15 rankings for the respective municipalities. Once again, these figures do not represent the absolute value

as it is in the case of heat maps, but they rather represent the relative concentration of hotels in these municipalities with respect to their size and the country averages.
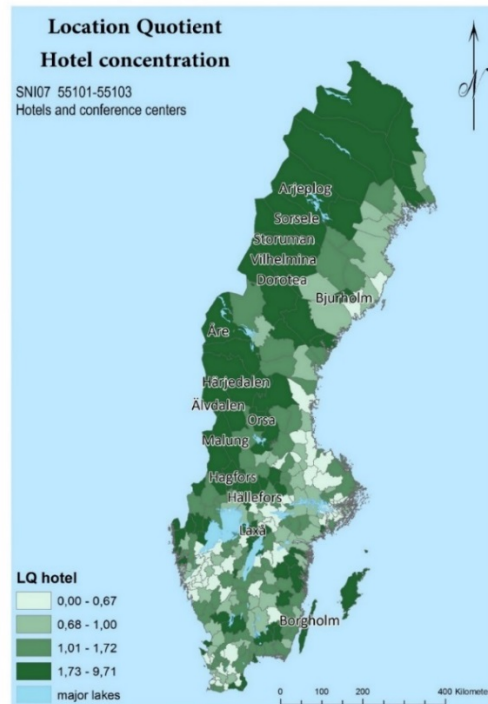
Figure-7: Location quotients for hotels (hotel concentration in Swedish municipalities)

With the Hotel branch, the municipalities that are abundant with tourist attractions and popular for cross-border shopping clearly appears to be those with the high LQs representing a relatively high hotel concentration. Looking at the municipality rankings, one can quickly notice the over-representation of northwestern municipalities among the Top 15. For example, Åre hosts the leading Scandinavian ski resorts, attracting visitors from other parts of the country, as well as from other countries. In the case of Arjeplog, despite its fairly small size, the municipality is a very popular winter test site for the Asian and European car industries. Härjedalen, likewise, attracts tourists and cross-border consumers from Norway to a large extent due to its location, as well as the presence of large historical sites with rock paintings (especially in Ruändan) that are over 4000 years. In the case of Sorsele (with less than 3000 inhabitants and very small local economy), half of the municipality is part of the Vindelfjällen Nature Reserve.

In the majority of the cases, the municipalities that are listed on the right-hand side with low location quotients are either sparsely populated or very residential with the lack of tourism attractions. Their location and intrinsic characters (climate, historical monuments, open space attributes) may not be securing a certain degree of guest/visitor inflow for hotels to be relatively clustered. We should keep in mind that the concentration figures are very sensitive to size, making smaller municipalities good candidates for success and failure story. With marginal changes in their hospitality sector, their ranking can change significantly.

Table-2: Swedish municipalities ranked with respect to relative hotel concentration

Top 15 Municipalities with highest concentration of hotels			Bottom 15 Municipalities with lowest concentration of hotels		
	Municipality	**LQ**		**Municipality**	**LQ**
1	Arjeplog	9,71	1	Täby	0,26
2	Åre	7,21	2	Sollentuna	0,26
3	Härjedalen	7,18	3	Sundbyberg	0,25
4	Älvdalen	6,46	4	Åstorp	0,24
5	Sorsele	6,40	5	Kumla	0,23
6	Storuman	6,13	6	Hallsberg	0,22
7	Malung	5,71	7	Botkyrka	0,21
8	Hällefors	5,33	8	Järfälla	0,19
9	Borgholm	5,30	9	Tyresö	0,17
10	Hagfors	5,02	10	Partille	0,12
11	Bjurholm	4,98	11	Nässjö	0,11
12	Laxå	4,88	12	Vallentuna	0,10
13	Dorotea	4,53	13	Bjuv	0,00
14	Orsa	4,37	14	Grästorp	0,00
15	Vilhelmina	4,12	15	Essunga	0,00

The map on the left-hand side of the figure-8 maps the Local Moran's I values for the Swedish municipalities for hotels and conference centers, which displays the spatial dependencies as well as the outliers with respect to the country average. Those that are shaded red are the municipalities with high values for the number of hotels that are also surrounded by municipalities with high values. Those that are shaded in yellow, on the other hand, are the municipalities with a high number of hotels that are shaded with a low representation of the hotel branch. In a way, we can read these maps as those that are doing well as a region or (a group of municipalities) vs. those that are doing well on their own.
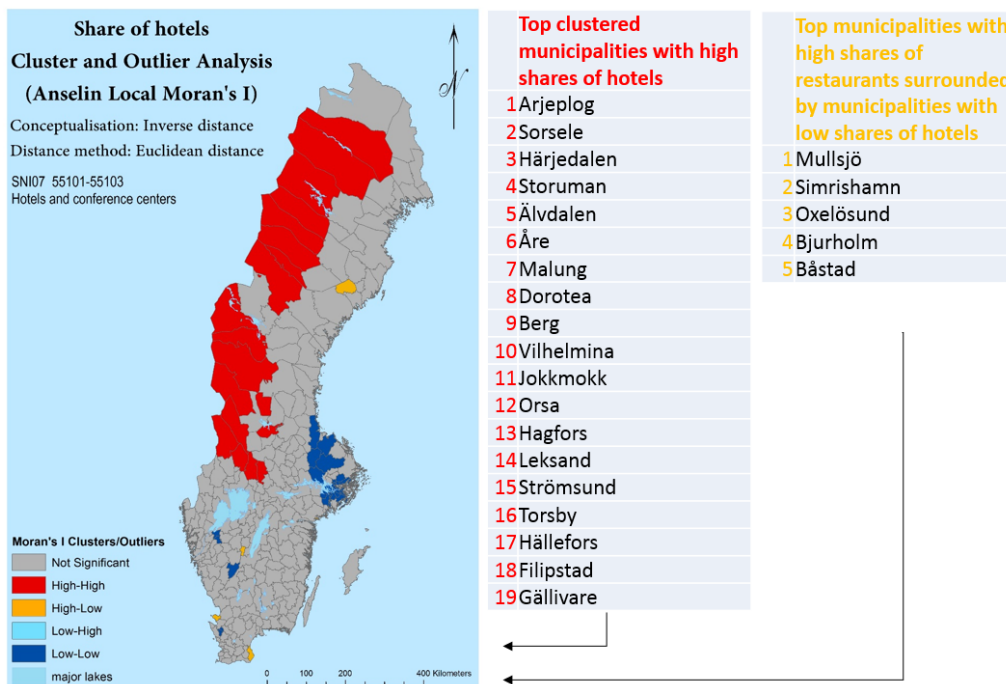

Figure-8: Local Moran's I for Swedish municipalities for the share of hotels, and respective municipality rankings

Once again, we see the municipalities at the northwest border and northern tourism attractions to populate the list where high-high municipalities are presented. The municipalities that are colored yellow are the municipalities with high values that are surrounded by the municipalities with low values. Mullsjö is aiding the inflow of visitors and consumers coming to the Jönköping area, whereas, in the case of Simrishamn, the mild climate due to Gulf Stream and proximity to Roskilde are the attracting factors. Oxelösund is a harbor town, and despite being the second smallest municipality in the country with less than 1000 residents Bjurholm has the attraction Elk House (Älgens Hus). Båstad, meanwhile, hosts the Swedish Open tennis tournament that attracts some 20,000 visitors and puts the town in a festive mood for a few weeks every summer.

Figure-9 shows heat maps of hotels of different sizes in terms of number of employees. The geographical distribution of hotel clusters is significantly different from hotels of different sizes. The three metropolitan areas, Stockholm, Malmö, and Gothenburg, are dominant for the large hotel clusters, but when we look at the clusters that consist of smaller size hotels we see a greater degree of spread out across the country. This is an important visual showing that the smaller communities function in a different fashion when it comes to the geographical layout of the hospitality sector. With smaller hotels, they fill the geographical gap, provide a spatial continuum.
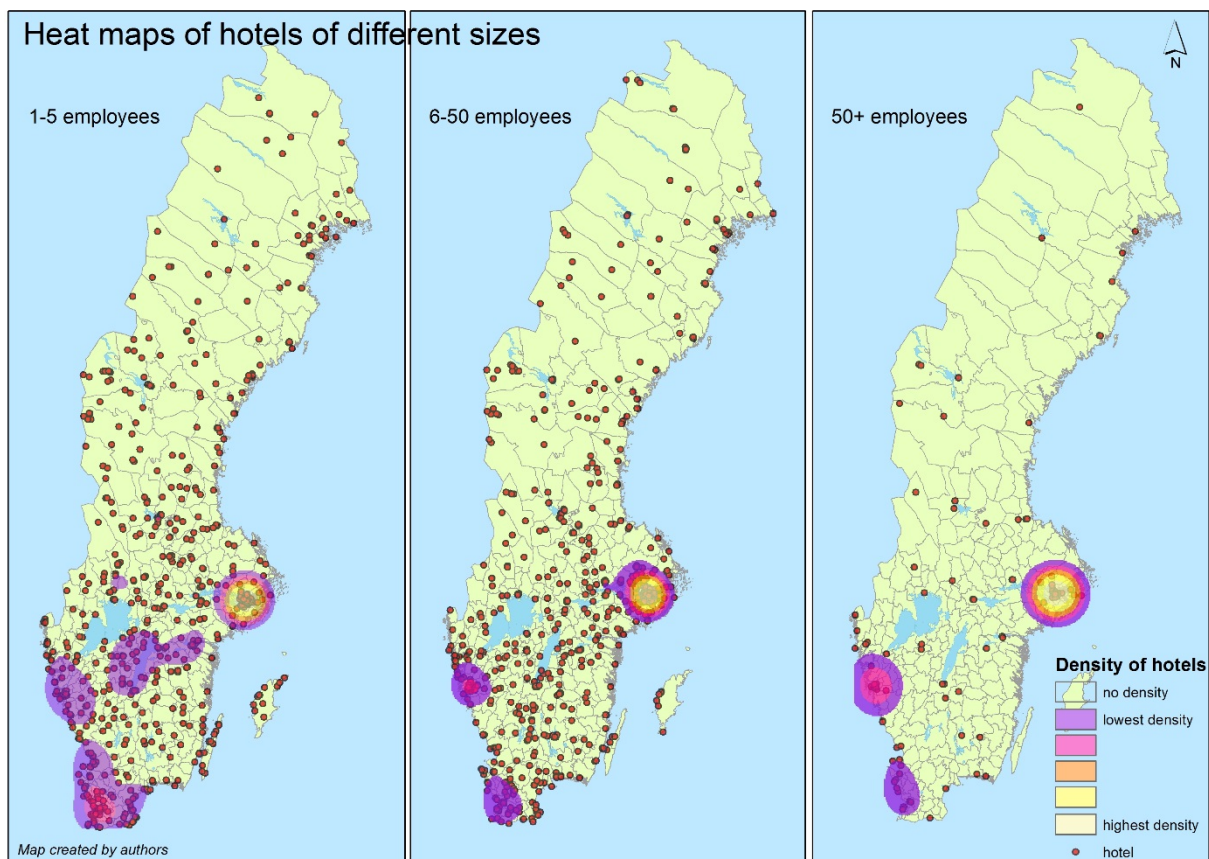
Figure 9: Heat maps for hotels of different sizes across Sweden

An interesting conclusion to be drawn comparing the spatial dependencies in the *RESTAURANT* branch to *HOTEL* branch is that we don't see much of a regional pattern with the restaurant branch among municipalities that are located in the same region or in close proximity to each other. Whereas with the hotel branch the municipalities with over-representation of hotels are located considerably close to each other.

7. **What drives the hospitality sector clusters?** The maps presented in this section are obtained by geographically weighted regressions (GWR) with the data from the year 2010 (Source: SCB). The maps help to display the spatial heterogeneity in the degree of hotels and restaurant clusters with respect to total wage sums in the respective municipalities, and aids a discussion on the spatial variation of the two major branches of hospitality sector with respect to local demand (figure-10). The explanatory variable is logged wage-sums as a proxy for local market demand in both models. The darker the green, the stronger is the positive relationship between local demand and the number of restaurants or hotels when spatial dependencies are taken into account. Local demand a stronger predictor of the number of restaurants than the number of hotels. The local demand is especially important for the restaurant branch in the Stockholm, Gothenburg, and Malmö regions. The relationship weakens further away from the large city regions in general. A similar pattern can be observed for the relationship between hotels and local demand, although it is not as pronounced.
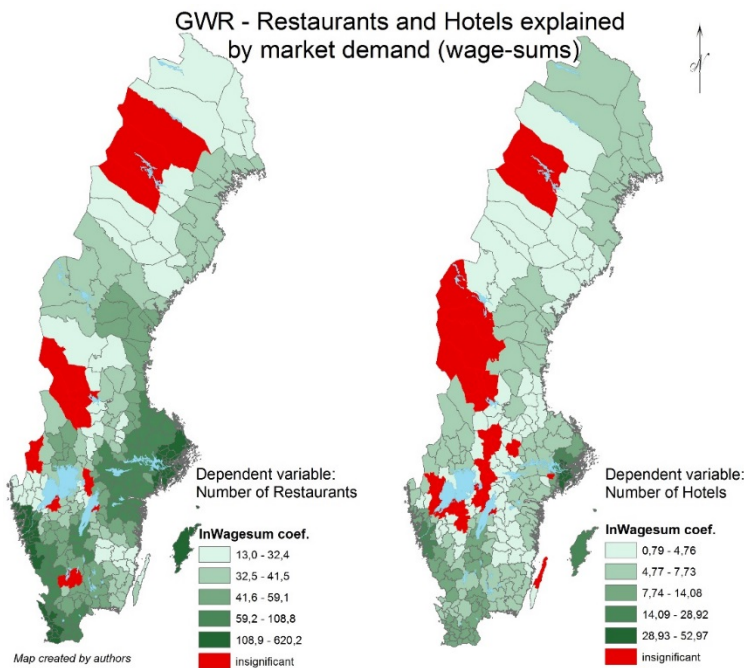
Figure 10: Geographically weighted regressions (GWR), *Restaurants and Municipal wage sums*

Figure-11 maps the relative importance of local demand not for the absolute number of restaurants and hotels, but for their concentration in Swedish municipalities. Once again, we utilize the location quotients. In this case, local demand appears to be most important for the concentration of restaurants in a number of municipalities that are located in the middle of the country and close to the Stockholm region. At the same time, the relationship between the local demand and concentration of restaurants appear to be insignificant for the municipalities that vastly benefit from cross-border shoppers from Norway. On the other hand, the northern municipalities show a somewhat strong dependence on proximate demand. For the relationship between local demand and hotel concentration, the relationship looks very different than it is for restaurants. It is reasonable to expect that the local demand does not have a significant impact on the accommodation possibilities in a municipality or in a region, which is confirmed in the map. The majority of the municipalities do not have a significant relationship between the concentration of hotels and local demand at all. In the north-western municipalities, the relationship

between local demand and hotel concentration is even negative. Previous maps have shown that these municipalities have the highest concentration of hotels with respective to the national average, and since the population is scarce in this region, such negative relationship is no surprise.
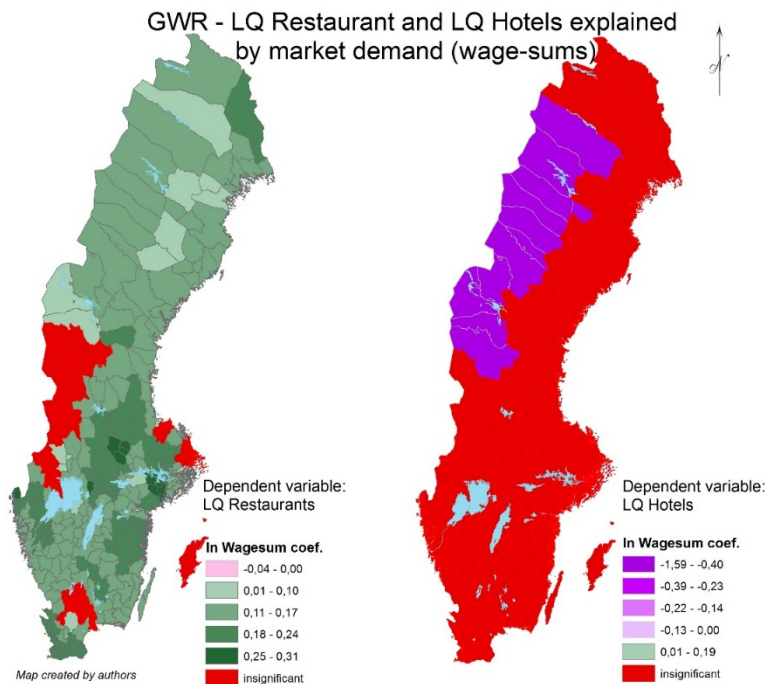
Figure 11: Geographically weighted regressions (GWR), *LQ restaurants and LQ hotels explained by wage sums*

Local demand is not the only factor we investigate. We also explore a number of variables that are relevant to the presence of clusters in the restaurant and hotels branch. These variables are explained in the Table-3. (Here in this short report we present some of the selected maps and briefly discuss the relationships between the listed variables and sector clusters. A detailed discussion and more maps related to the variables are available upon request.)

Table 3: Spatial factors that influence the concentration of hotel and restaurant branch, tested via GWR

Variable	Explanation
Average elevation	The average elevation of each municipality
Distance to coast	Distance to the coastline from each municipalities border
Population	The number of inhabitants in each municipality
Self-employment	The share of self-employed people in each municipality
University	The share of the population with a university degree in each municipality
Occupation types (1-4)	The share of the people with a certain type of occupation in each municipality

The average elevation and distance to coast variables are meant to proxy for the importance of natural amenities, whereas the population variable is a measure of the size of the municipality similar to wage-sums. The share of self-employed people captures the degree of entrepreneurship and business milieu in the municipality. The share of the population with a university degree is a proxy for the degree of highly skilled people. There is a list of arguments for why one should look specifically into the representation of highly educated in a municipality. A high degree of highly educated and skilled people is argued to reflect different tastes and consumption habits in a local population. The type of economic activities these individuals are engaged in are more mobile in nature and requires higher degrees of interaction that is a good indicator for the potential business driven visits. Similarly,

the occupation variables capture the heterogeneity of the local population and local economy in a municipality. Such variable doesn't only relate to the industrial diversification but also the composition of the consumers nearby. We even split the employment into four occupation based skill categories to have a refine understanding of the people living in close proximity in a given municipality.

Table-4: Occupation based-skill categories

	Type of skills/occupation	Examples of occupation
1	Cognitive	Individuals in the Natural Science related occupations, Computer Scientists, Engineers
2	Management and administration	Chief Executive Officers, managers, marketing
3	Social	Teachers and instructors, Individuals in the health related occupations, Sales people and brokers
4	Motor	Manufacturing workers, construction workers, machine operators

Here we discuss our findings for all variables but present only a selected number of maps. We look into the relationship between hotel & restaurant concentration and the variables afore-mentioned separately to have a better understanding of the mechanisms.

    a. **Restaurant Branch:** Elevation generally has an insignificant, or in some cases negative, relationship with the concentration of restaurants, except for in Åre, Berg and Härjedalen. As expected, the closer a municipality is to the coast, the higher is the degree of concentration of restaurants (except for Åre, Berg and Härjedalen once again). This relationship is only significant for a few areas along the coast such as around Blekinge, Öland and Gävle. A higher population results in a higher degree of restaurants for some municipalities, but the relationship is insignificant in many municipalities as well.
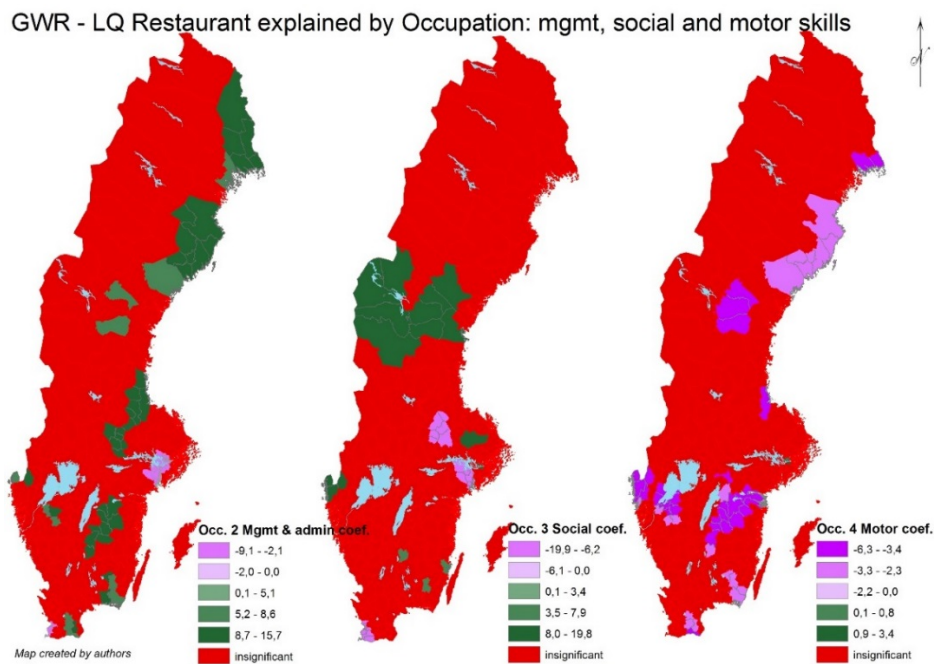
Figure-12 shows that in general, a high degree of self-employed is associated with low concentration of restaurants, which may strike as a rather counterintuitive result. What we should keep in mind is that it is not the 'levels' but the relative concentration (clustering) we are after. As discussed previously, in majority of the cases it is not what is available in the municipality that matters but rather what the municipality attracts from outside. A high share of the population has a university degree (2nd map in the figure) or a profession that require cognitive skills (3rd map in the figure) there is a higher degree of restaurant concentration. Such relationship, however, is insignificant for a majority of the municipalities.
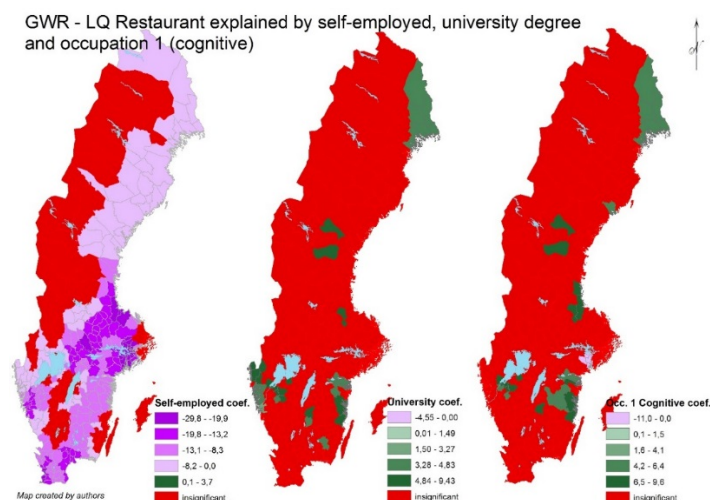

GWR - LQ Restaurant explained by self-employed, university degree and occupation 1 (cognitive)

Figure-13 shows that in some municipalities a high share of people with management level employment (labeled as mgmt) have a high concentration of restaurants. Skiing destinations (Åre and its surrounding municipalities) exhibit a significant relationship between a high share of people with socially oriented occupations and the relative concentration of restaurants. Social occupations includes but not limited to hospitality sector employment. A high share of people with occupations related to motor skills, which can also be referred as blue collar workers, imply a low concentration of restaurants. This finding is not surprising since municipalities with many of such type of workers are probably industrial municipalities, which often characterized with low levels of leisure sector representation, where hospitality sector is not very dominant.

GWR - LQ Restaurant explained by Occupation: mgmt, social and motor skills

Map created by authors

Occ. 2 Mgmt & admin coef.
-9,1 - -2,1
-2,0 - 0,0
0,1 - 5,1
5,2 - 8,6
8,7 - 15,7
insignificant

Occ. 3 Social coef.
-19,9 - -6,2
-6,1 - 0,0
0,1 - 3,4
3,5 - 7,9
8,0 - 19,8
insignificant

Occ. 4 Motor coef.
-6,3 - -3,4
-3,3 - -2,3
-2,2 - 0,0
0,1 - 0,8
0,9 - 3,4
insignificant

Figure-13: GWR: LQ restaurant explained by occupation shares: *management & admin*, *social*, and *motor*

b. **Hotel Branch:** Our findings for the hotel branch show that even though the average elevation in a municipality generally has an insignificant relationship with hotel concentration, there exists a positive and significant relationship between these two variables in the north-western part of Sweden (see figure-14). As mentioned before, the mountain range in this region attracts many tourists. The distance to the coastline is also generally an unimportant predictor for hotel concentration, however it significant and negative (the closer to the coast, the higher the hotel concentration) for a few municipalities on the coast. Municipal population is an insignificant variable in terms of predicting hotel concentration except for in the scarcely populated north-western part of Sweden, where there is a high concentration of hotels.
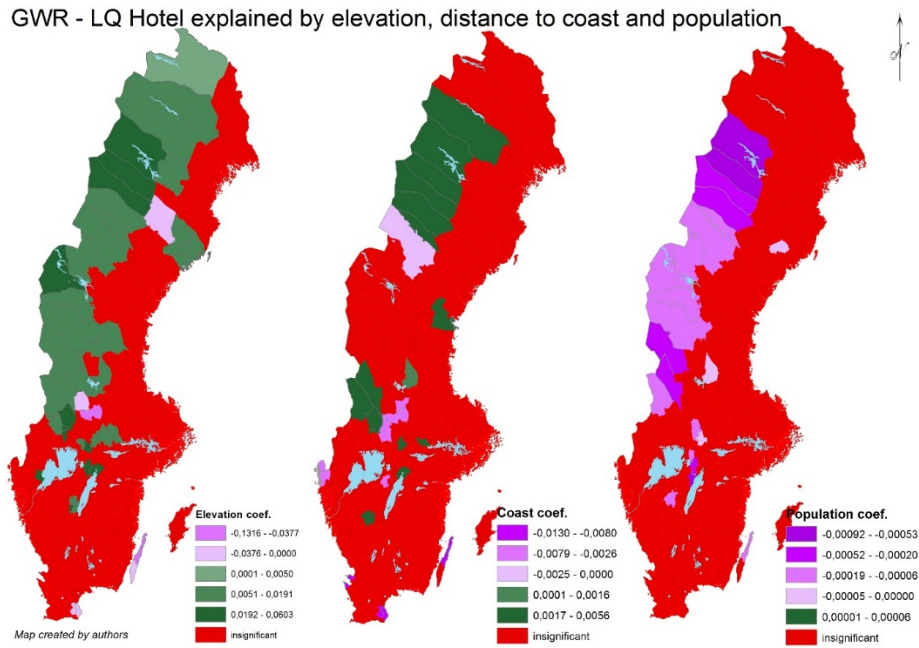
Figure-14: GWR: LQ hotel explained by elevation distance to coast and population

With hotel branch too, in general the relationship between entrepreneurial climate, share of people with a university degree and share of people with cognitive occupation skills and hotel concentration is insignificant with exceptions. There is a pattern for the municipalities with a significant relationship, where the municipalities of north has a significant relationship between a high degree of self-employed and high relative clustering of hotels.

Paper 1: The Economic Geography of Leisure and Hospitality Destinations

by Johan Klaesson & Özge Öner

In a separate study, we nested all of the recreational and touristic economic activities under 8 categories as seen in table-3. We use data for Sweden for the time period between 2003 and 2008. The aim of this study is to analyze the importance of the location dependent factors that determine the presence and scale of various branches of leisure and hospitality sectors. Our analysis uses an economic geography framework where the regional hierarchy itself is modeled in order to explain the spatial distribution of these sectors. Understanding the role of proximity to demand is in focus. Main question is "Which matters most: **Municipal** or **Regional** market potential?"

Table-3. Leisure service categories

ACCOMMODATION
•   Hotels with restaurant, except conference centers
•   Lodging activities of conference centers
•   Hotels and motels without restaurant
•   Youth hostels and mountain refuges
•   Camping sites, including caravan sites
•   Other provision of lodgings n.e.c.
CULINARY
•   Restaurants
•   Bars
•   Canteens
•   Other Catering
MOTION PICTURE
•   Video and DVD film renting
•   Motion picture projection
SPECIAL EVENTS
•   Exhibition, trade fair, congress and day conference activities
•   Fair and amusement park activities
ARTS
•   Artistic and literary creation and interpretation
•   Operation of arts facilities
PUBLIC
•   Public Library Activities
•   Museum activities and preservation of historical sites and buildings
•   Botanical and zoological gardens and nature reserves activities
SPORTS
•   Operation of ski facilities
•   Operation of golf courses
•   Operation of motor racing tracks
•   Operation of horse race tracks
•   Operation of arenas, stadiums and other sports facilities
•   Sportsmen's and sports clubs activities
•   Horse racing activities
•   Sporting activities
•   Organization of sport events
•   Gambling and Betting
•   Operation of riding schools and stable activities
WELL-BEING
•   Hairdressing
•   Beauty treatment
•   Physical well-being activities

Now taking a look at the descriptive figures in table-2 for the employment trend in the respective categories, we see a mixed picture. The share of employment in the investigated services as a whole with respect to overall employment was approximately 4.5% in 2003 and increased up to 5.1% in 2008.

The only category where there is a decrease in the employment is *public* with 5.5 percent negative change. *Culinary* and *well-being* related services have experienced the two highest employment increases over the

period. Being the highest figure, the change in well-being employment is 36 percent in five years. This drastic increase is followed by the *Culinary* and the *Arts* categories. The overall employment growth in the economy during the period was 8 percent while in these service sectors it was 21 percent.

Table-4. Employment in leisure and tourism sectors

Categories	2003	2008	Change	Percentage Change
Accommodation	30036	35162	5126	17
Culinary	68803	87729	18926	28
Motion Picture	1613	1721	108	7
Special Events	4193	4680	487	12
Arts	14991	18313	3322	22
Public	14546	13751	-795	-5
Sports	29664	33288	3624	12
Well-being	22201	30104	7903	36
Sum	186047	224748	38701	21
Total Employment in Sweden	4083383	4406789	323406	8
Share of leisure and tourism (%)	4.5	5.1		

(In the empirical model several other controls are employed in order to capture the effect of additional important regional characteristics. Those are (i) intensity of commuting, (ii) entry rate for new business, (iii) employment share and (iv) employment share in manufacturing sector, (v) housing prices, and (vi) proximity to coastal border. Here in this report we only present the relative importance of *Municipal* and *Regional* market potential for the presence of leisure and hospitality services in Swedish municipalities. (Full paper is available upon request.)

Table 3. Leisure and tourism employment explained by regional characteristics

	Accommodation	Culinary	Motion picture	Special events	Arts	Public	Sports	Well-being
Municipal Demand	0.621***	1.009***	0.276***	0.335***	0.805***	0.817***	0.997***	1.065***
	(8.690)	(22.84)	(3.545)	(3.407)	(10.15)	(12.67)	(19.84)	(45.69)
Regional Demand	-0.230***	-0.0896***	0.0280	0.0350	-0.0373	-0.0720**	-0.0413	-0.0496***
	(-7.029)	(-3.863)	(1.245)	(1.116)	(-1.164)	(-2.360)	(-1.554)	(-3.121)
Observations	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740
R-squared	0.831	0.919	0.923	0.887	0.902	0.881	0.878	0.951

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Municipal demand represents the potential demand in close proximity. Whereas the *Regional demand* stands for the market potential that comes from all other municipalities that are hosted in the same region as the hosting municipality. It represents the market potential in the region shared by the municipalities that constitute the region. (Both of the market potential variables are log-transformed, so their coefficients can be interpreted as elasticities.) *Municipal demand* has a positive and significant impact on the presence of leisure service clusters in all eight categories, which is not a surprising finding. It means that the presence and scale of all of the 8 categories of leisure and hospitality services is dependent on the potential demand in the close proximity. What is really interesting is that the effect for some categories like *Culinary* and *Well-being* extends beyond the value one, implying that doubling the demand within the municipal borders would lead to more than a 100 percent increase in the employment in these sectors in the respective municipalities. (For example if we move from Gothenburg to Stockholm we would find more than twice of these two types of services.) Highly significant and large coefficients are obtained for the impact from municipal demand is supporting the idea of a strong dependence on the proximate market.

When we look at the impact from regional demand, which is the demand originating from the neighboring municipalities in the same region, we once more find support for the earlier discussion on an urban-periphery structure. If consumers in a municipality have higher access to other market places nearby and/or the market potential of these neighboring municipalities expand, they will be more likely to travel and patronize further away services. If not significant and negative, this kind of impact is non-existent or negligible and the neighboring municipalities. We see a negative and insignificant impact from higher intra-regional accessible market potential on the clusters of *Accommodation, Culinary, Public, and Well-being,* which implies that the municipalities in the same region are in competition for the same set of consumers demanding such services. This kind of impact is insignificant for the other sector categories, meaning the regional demand is irrelevant for the presence and scale of services like movie theaters and art galleries and what matters is the potential demand nearby.

Paper 2: Neighborhood Determinants of Restaurant Location in Sweden

by Johan P Larsson & Özge Öner

How are the restaurants placed in an urban environment? What do we see around the restaurant in a city? In this paper we characterize the broad patterns in restaurant location across the metropolitan areas of Sweden for the year 2011. We use geocoded data on the neighborhood level and analyze the probability of finding restaurants with respect to potential demand, local competition, complementing shopping opportunities, and other characteristics of the urban landscape. We hold constant key characteristics of the urban regions, and identify our parameters by exploiting within-region variation at the level of neighborhoods a very fine geographical disaggregation (1km to 1km grids). Our econometric analysis indicates that the presence of local restaurants is strongly predicted by availability of shopping related to recreation services and retailers selling clothing. Further, the typical immediate surroundings differ considerably between chain-type restaurants, and independent restaurants.

The data source used in this study is a geocoded dataset, maintained by Statistics Sweden. The structure of the data is a square grid, covering the entire nation. The idea is to represent "neighborhoods" with 1-by-1 kilometer squares. Each such square with economic activity becomes an observational unit in our regression analysis, the coefficients of which are displayed in the table below.

The Table-1 clearly confirms that a big chunk of the co-location phenomena in the restaurant branch is driven by scale and access to demand. The variable 'Employment Density' confirms that the more people work in a locality, the higher is the purchasing power, and the higher is the probability of finding restaurants. This is consistent with workers spending money on lunches, or on takeaways after work. A similar interpretation may be given to the Demand variable, which simply measures the aggregate (summed-up) wages earned per neighborhood. The Distance to CBD (Central Business District) variables confirm that the farther away we go from the city center, the less is the probability of observing restaurants in a neighborhood, keeping other factors constant.

Table-1: Probability of finding a restaurant in an urban neighborhood in Sweden

Variable	Coefficient (A)	Marginal Effect (B)	Coefficient (C)	Marginal Effect (D)
Accommodation	0.748***	0.0265***	0.758***	0.0307***
	(0.0692)	(0.00254)	(0.0694)	(0.00292)
Tourism services	0.365***	0.0129***	0.353***	0.0143***
	(0.0362)	(0.00137)	(0.0364)	(0.00157)
Movie theatres	1.054***	0.0374***	1.073***	0.0434***
	(0.226)	(0.00810)	(0.228)	(0.00933)
Special events	0.459**	0.0163**	0.422**	0.0171**
	(0.179)	(0.00636)	(0.182)	(0.00738)
Arts	0.134***	0.00474***	0.137***	0.00556***
	(0.0428)	(0.00154)	(0.0425)	(0.00175)
Public	0.974***	0.0345***	1.025***	0.0415***
	(0.129)	(0.00469)	(0.128)	(0.00535)
Sports	0.421***	0.0149***	0.421***	0.0170***
	(0.0367)	(0.00137)	(0.0369)	(0.00158)
Wellbeing and Beauty	0.266***	0.00944***	0.255***	0.0103***
	(0.0240)	(0.000942)	(0.0247)	(0.00110)
Clothing Retailers	0.733***	0.0361***		
	(0.0834)	(0.00557)		
Food Retailers	1.303***	0.0811***		
	(0.0601)	(0.00615)		
Household Retailers (e.g. furniture and electronic stores)	1.194***	0.0717***		
	(0.0655)	(0.00624)		
Specialized Retailers (e.g. book shops, opticians, flower shops)	0.844***	0.0433***		

	(0.0691)	(0.00499)		
Distance to CBD	-0.00711***	-0.000252***	-0.00550***	-0.000222***
	(0.00211)	(7.48e-05)	(0.00208)	(8.40e-05)
Distance to Regional CBD	-0.00434***	-0.000154***	-0.00367***	-0.000148***
	(0.00107)	(3.81e-05)	(0.00107)	(4.34e-05)
Demand (Ln_Wage)	0.238***	0.00845***	0.293***	0.0118***
	(0.0128)	(0.000362)	(0.0139)	(0.000401)
(Ln) Employment Density	0.0806***	0.00286***	0.0680***	0.00275***
	(0.0163)	(0.000576)	(0.0162)	(0.000658)
Total Retailing			0.689***	0.0279***
			(0.0237)	(0.00137)
Constant	-5.762***		-6.251***	
	(0.147)		(0.159)	
Observations	60740	60740	60740	
Pseudo R-squared	0.426		0.425	
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1				

An interesting effect that emerges from the table-1 in excess of demand and scale driven factors, is that even keeping employment density, local purchasing power, and geographical location relative to the city centers constant, there is substantial co-location of hospitality related activity with restaurants. This may be interpreted as a clear indication that restaurants are dependent on clustering processes, and that such industries potentially benefit much more than others from locating close to other businesses.

This behavior is sometimes referred to as "strategic complementarities". Imagine the following hypothetical scenario: a potential customer needs to optimize his time throughout the day to accomplish a few tasks, say, dropping of his son at the cinema, purchasing a gift for a friend's birthday party, and picking up some dinner from a restaurant. It can then be shown that the profit-maximizing behavior of firms is to co-locate (see e.g. Larsson and Öner, 2014). In this way the customer saves time and effort, while the stores, the cinema, and the restaurants are looking at a wider customer base through these complementarities. This is a consistent explanation for why we observe the patterns in the table. The interpretation of the marginal effects are in addition quite straightforward. The marginal effect of Movie Theatres, for instance, means that an inflow of an additional such activity in a neighborhood is associated with about a 3.75% increased probability of finding a restaurant there. Analogously, the marginal effect of another Sports is associated with a 1.5% increased probability of finding a restaurant, and so on.

In this way may sound straightforward to conclude that "everything is scale driven", when in fact quite a lot is not. The fact that the regressions hold local demand, distance to the center, and employment density constant actually tells the opposite story: if scale was everything, all other effects would be zero. The fact that they are not means that we can talk about clustering in a very real sense of the word. Further, the difference between columns (A)-(B), and (C)-(D) confirms that this phenomenon holds true, even as we disaggregate the "retail" typology.

Paper 3: Spatial Determinants of Hospitality Sector: An Urban-Rural Duality

by Mikaela Backman, Johan P Larsson & Özge Öner

This paper addresses the systematic variations in the spatial determinants of hospitality sector across urban and rural places. Using data from Swedish municipalities, the empirical analysis investigates the existing (i) hospitality sector clusters, and (ii) relevant market potential and competition for these clusters in urban and rural places in an empirical setting where several spatial characteristics are taken into account. The paper aims to contribute to the existing literature, as well as the actors of the hospitality sector by providing an overview for the importance of urban-rural duality for hospitality sector, where the differences in the relevance of several spatial determinants between urban and rural places are highlighted. *(Research in progress)*
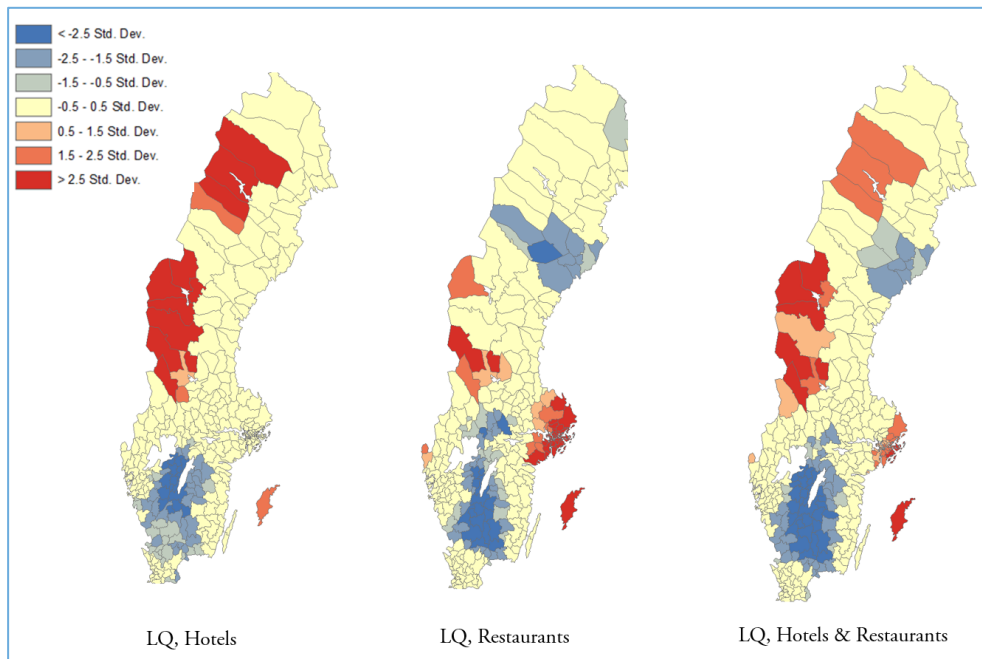
Figure-1: Cluster analysis, for hotel branch, restaurant branch. And hotel & restaurant branch respectively, 2010

As a departure point, by the aid of a cluster analysis, we observe a distinct pattern where hotel clusters are evident in and around west-coast and popular winter destinations. Whereas restaurant clusters show up in localities such as the Swedish summer destination Gotland Island, Åre and similar winter destinations, and the municipalities in the greater Stockholm region.

The variables we have preliminarily taken into consideration in the analysis are:

- ➢ Total market potential (measured in terms of accessibilities, taking spatial continuum into account)
- ➢ Restaurant and Retail concentration
- ➢ Number of museums
- ➢ Availability of skiing facilities
- ➢ Availability of a botanic garden or a zoo
- ➢ Availability of an amusement park
- ➢ Sea border

Here in this short report we present our preliminary findings only for the Hotel branch. Our primary objective is to identify the variation across Urban and Rural Sweden.

Table-1: Variation in Urban and Rural Sweden for the determinants of Hospitality Sector

VARIABLES	CITY Hotels (logged)	RURAL Hotels (logged)	CITY Hotel Concentration (LQ)	RURAL Hotel Concentration (LQ)
Total market access	0.0243	-0.0159	-0.271**	-0.589***
	(0.113)	(0.0534)	(0.127)	(0.120)
Restaurant concentration	0.611**	0.503***	0.878***	1.763***
	(0.232)	(0.110)	(0.227)	(0.246)
Retail concentration	-0.0147	-0.158	-0.00949	-0.122
	(0.253)	(0.134)	(0.266)	(0.307)
Number of museums	0.0301***	0.116***	0.00408	-0.0846
	(0.0113)	(0.0257)	(0.0128)	(0.0590)
Skiing facilities (dummy)	0.456*	0.360***	-0.324	0.830***
	(0.252)	(0.136)	(0.289)	(0.311)
Botanic gardens or zoo (dummy)	0.790***	0.123	0.0110	0.0773
	(0.240)	(0.150)	(0.274)	(0.344)
Amusement park (dummy)	0.504**	0.130	-0.238	-0.140
	(0.204)	(0.156)	(0.225)	(0.357)
Seaborder (dummy)	0.283*	0.303***	-0.0256	-0.0557
	(0.162)	(0.116)	(0.185)	(0.257)
Constant	0.823	1.410**	3.467**	6.399***
	(1.288)	(0.567)	(1.449)	(1.276)
Observations	86	192	92	197
R-squared	0.540	0.378	0.198	0.412

A rough look at the analysis signals systematic differences between rural and city municipalities. The size of the municipality in terms of market potential is not associated with the concentration of hotels, which is introduced to the analysis as a proxy for touristic potential. Certain tourism branches (e.g. skiing facilities) seem to be relevant only for rural municipalities. Here we see a potential for the relevance of the hospitality sector for the rural growth and development. Relative retail concentration seems to have an insignificant effect on the availability of hotels however on a separate analysis we observe that the overall access to shops have a significant and positive relationship with the representation of hotel branch at the municipal level. Coastal border appears to matter for the absolute number of hotels in a municipality, roughly equally important for city and rural parts of the country. Whereas it appears to have no significant effect on the relative concentration of hotels in such localities.