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## Gourmet restaurants and small-scale food production - Swedish rural and urban regions

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# **Gourmet restaurants and small-scale food production**

## **Swedish rural and urban regions**

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### **Abstract**

There is a growing interest in haute cuisine that can be found around the world. One reflection of this is found in gourmet magazines, releases of prestige wines, international restaurant rankings, and the opening of spectacular restaurants. This interest is also found in formulation of policy strategies for regional development. The presence of haute cuisine restaurants is often assumed to attract visitors who seek unique experiences, and thereby also stimulate turnover on related markets. In addition, it is also common to presume that haute cuisine restaurants are dependent on access to local and/or regional food suppliers' whose products are characterised by high quality, and that such firms have small-scale production.

The purpose of this paper is to explore the location pattern of gourmet restaurants in Sweden using the White Guide. In the empirical analysis we focus on the question if the presence of haute cuisine restaurants in a local market is explained by access to small-scale firms in the food industry (and sub-sectors). In the analysis we also compare the spatial distribution of haute cuisine restaurants with the spatial distribution of the tourism sector. In the empirical analysis we also make a distinction and comparison between rural and urban regions in Sweden.

### **KEYWORDS**

Food industry, restaurants, small-scale food production, tourism, regional development, negative binomial regress

# 1 Introduction

Lately there has been a tremendous increase in peoples' interest in food. Sweden – “the new gastronomic nation” as stated by the Swedish Minister of Agriculture, Eskil Erlandsson refers to the idea of Sweden as one of the advanced frontiers in world gastronomy. The vast natural environment of Sweden provides an abundance of culinary delicacies and Swedish restaurants and chefs are eulogized internationally.

Additionally, the importance of culinary tourism for increased growth and development of rural areas has been acknowledged by several researchers (Boniface, 2003; Hall, Sharples, Mitchell, Macionis, and Cambourne, 2003). The importance of local products and small scale food production has in recent times been a subject brought up by the media. One may presume that gourmet restaurants are to some extent dependent on the access to local food producers, and one may also believe that such firms to a large extent have small-scale production.

The insight that both local restaurants and food producers contribute to a rich countryside brings curiosity to the reasons behind the development of gourmet restaurants and the importance of small-scale food producers in different regions. However, little previous research has paid attention to this area. For this reason, the purpose of this paper is to examine the characteristics influencing the localization pattern of gourmet restaurants in Sweden. Conducting a quantitative research with strong qualitative characteristics needs certain considerations. The quality of data is of great importance when quantifying a qualitative study of the service industry. Nevertheless, the data analyzed in this paper rely on superior figures and evaluations provided by the White Guide.

The theoretical background of the paper is given in the next section of the paper. Several aspects discussing the reasoning behind the existence and growth of gourmet restaurants are being stated. In section three, the empirical approach is explained. A zero-inflation negative binomial regression has been applied in order to estimate what factors affect the localisation pattern of Swedish gourmet restaurants. This is followed by a data overview where the data is being explained and shortcomings of the model are discussed. Section four demonstrates the empirical results and an analytical discussion. Finally the conclusion is given under section five.

## 2 Theoretical Background

In order to study and explore the location pattern of Swedish gourmet restaurants, various factors that need to be considered. The restaurant industry is driven by different factors. First of all gourmet restaurants mainly belong to the creative industry driven by (most often) (i) a well reputed chef, implying an assurance of quality; (ii) innovation and technology, i.e. high level of research and development (ground-breaking cooking), (iii) a revolutionary philosophy, e.g. local supply of ingredients (eco-thinking) and (iv) a diversified business in order to create numerous revenue streams.

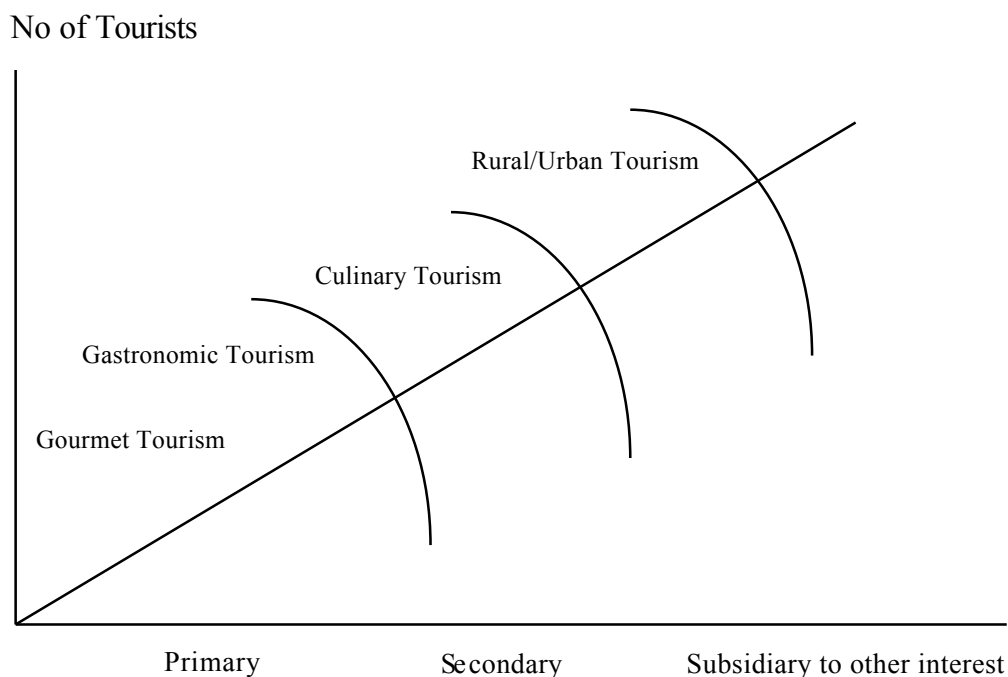
Furthermore, it is driven by the market potential, the customers. Gourmet restaurants generally have three types of costumers; customers visiting from other regions, business visitors and local customers. Market potential is a phenomenon acknowledged in economic geography; the accessibility and purchasing power of customers determine a regions market potential (Brakman, Garretsen and Marrewijk, 2009). One can observe the positive relationship between regions with high concentration of tourists and regions with a high concentration of gourmet restaurants in Sweden (displayed in the appendix). Relationship will further be analyzed in the paper.

There are several linkages between tourism and food production. More tourists generally imply more restaurants as a result of an increase in demand for restaurants in these regions. Even so these restaurants most often exist due to the fact that people need to eat, and not because they are interested in eating at a specific place. However, food tourism is today a well known concept and some people do travel to a certain destination with the primary motive of visiting a specific restaurant.

A region might be famous for its culinary kitchen or regional products per se and therefore attracts tourists by this reason itself. If not, a region could enhance the benefits of tourism by improving the local food market as to attract more visitors. The latter shows the backward economic linkage between the food and the tourism industry, where the tourism demand is caused by an existing supply of well-reputed restaurants and/or superior local food producers (Boniface, 2003).

Food may also be an important part of a regions cultural heritage. There has lately been a renewed interest in local culture and tradition, and previous literature has acknowledged the importance of national cuisine and local food as subjects of tourism (Hall et. al., 2003; Long, 2004; Boniface, 2003).

To clarify the concept of food tourism, we start by dividing tourism into rural/urban tourism and gourmet tourism. In between there are two other levels that we may call gastronomic tourism and culinary tourism (Hall, Sharples, Mitchell, Macionis and Cambourne (2003)). Below, the different levels of tourism are illustrated by a graph.



*Figure 2-1; Importance of a special interest in food as a travel motivation*

Source: Hall, Sharples, Mitchell, Macionis and Cambourne (2003)

In figure 2-1, the number of tourists with a primary motive of visiting a particular region because of the culinary experience is less than the number of tourists with a moderate or no interest in experiencing the gastronomic world. However, bearing in mind that the typical tourist in Sweden approximately spends 16%<sup>1</sup> of its vacation expenditure on restaurant visits (Tillväxtverket, 2008), improvements within the food industry locally is of great importance and can play an important role for local tourism and development.

<sup>1</sup> Swedish tourists spend 11% of their expenditures on restaurants visits; foreign tourists 25 %.

Further on, the food experience offered in a certain region may be used as a marketing tool for a region. In order to become a food tourist, the person traveling must visit the specific region to consume the local food. Accordingly one may define food tourism as consumption of the local and the consumption and production of place (Hall et. al 2003). Even so, this does not imply that the products are only consumed in these areas. Food tourism is a great opportunity for local producers to increase their production and provide their products in the regions where the tourists come from; hence it may perhaps enhance the export of local products.

Numerous attempts have been made with the intention of enhancing the food and agriculture industry in Sweden and other European countries<sup>2</sup>. The most recent governmental campaign, called “Sweden –the new culinary nation” aims to strengthening the competitiveness, increase exports, employment, and create renewed interest for the food industry (Ministry of Agriculture, 2008).

Even though food and tourism is highly linked, an increase and improvement in the local food industry not necessarily imply an increase in exports. If governments ought to increase food exports, other attempts must be considered. If projects, equivalent to “Sweden –the new culinary nation”, are to succeed, governmental policies should create incentives for small-scale producers to expand their production and engage in export activities.

The main inputs of regional economic theory and the interest of regional growth have developed from the neoclassical model of growth, first initiated by Robert Solow. However, there are still disagreements among researchers what the underlying causes of economic growth are. Recent research emphasize the importance of factor supplies in the process of growth, following the neoclassical theory.

The neoclassical model observes three different sources of growth; the capital stock, the labour force and technology (Mundlak, 2000). The growth rate of these factors vary between regions, hence, we experience regional growth disparities. In addition, interregional factor migration is of great importance; capital and labour will move to regions were the highest rate of returns can be achieved.

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<sup>2</sup> The Rural Development Programme; New Nordic Food; Baltic Sea Culinary Route

The effect of factor mobility will differ for low- and high-wage regions. If one assumes that capital is more mobile than labour, low-income regions will experience a faster inflow of capital than the loss of labour. If this is true, the low-income regions will experience a faster output growth than high-income regions. Others stress the importance of demand factors in line with the Keynesian theory ignored in the neoclassical approach. The post-Keynesian approach also give emphasis to the importance of the competitiveness of a region's export sector (Krugman, 1991).

Economic growth theories also enhance the importance of technology. In the neoclassical growth theories of the Solow-type, countries are predicted to experience a similar process of economic growth and eventually converge to the same GDP per capita in the long run. Empirical evidence shows that this is not the case since both growth rates and levels of GDP per capita differ significantly between countries. The only means for a positive growth rate in these models are capital accumulation or technological progress. Since capital accumulation experiences diminishing returns, the only source of growth in the long run is exogenous technological progress.

The absence of convergence in the world suggests that the assumptions and predictions of these models are flawed (Brakeman et. al., 2009). Earlier growth models seldom include human capital as a distinct variable. However, more recent growth theories tend to include human capital since it has shown to have an impact on growth rates. The extended neoclassical growth model has today become known as the endogenous growth model, where technical progress is both the cause and an effect of growth.

There are a vast number of theories trying to explain the reasons behind location patterns. Even though there has been an extensive discussion over the externalities that lead to localization of industries, most of the literature follows the work of Alfred Marshall. Three different reasons for spatial agglomeration of economic activity were identified by Marshall (Marshall, A. 2009). First, when firms are located in the same area, this allows for pooled market benefits. Second, a more localized industry is able to support local suppliers specialized within the same field. Finally is the concept of technological spillovers.

In a modern economy technological competition is severe and there are various means for a firm to obtain technological advantage. The phenomenon of industrial clusters implies that

firms in the same industry cluster in order to take advantage of external economies of scale. When firms locate close to each other this results in knowledge spillovers (Krugman, 1991).

The theory of vertical integration explains the degree to which a firm owns its upstream suppliers and downstream buyer. According to previous literature there are two main motives; market power and creation of efficiency (Bruchey, 1994). This phenomenon can be seen within the agriculture sector where farmers become entrepreneurs, or restaurants have possession of their own farms. Per Bengtsson<sup>3</sup>, Restaurateur at PM och Vänner, states that vertical integration is an effective way to understand the industry and assure the best quality of their products. It has lately become a trend for gourmet restaurants to cultivate their own land and work closely with food suppliers and farmers.

Vertical integration is strongly connected to technological innovation. A restaurateur might use vertical integration as a method to take control over the entire chain; thus keeping new technologies or innovations from leaking to competitors. Mansfield (1985) states that information about new products or processes reveal within, on average, a year after it has been developed.

Adrià Ferran at El Bulli in Spain might be the world's greatest example; he combines high level of research and development in order to create gastronomic novelty. The motto of chef Adrià is "creation means not copying others" (Howard 2000). Even though El Bulli is considered as the number one restaurant in the world<sup>4</sup>, the restaurant itself is still not making any profits. According to Adrià Ferran food is a creative art and should not be confused with business; nonetheless the brand is profitable. El Bulli is a diversified business where the brand covers not only the restaurant but laboratory, culinary institute, publishing house and design collaborations (Carlin, 2006).

Accordingly, the restaurant sector may be considered as a creative industry, where innovation and creativity are main factors to succeed. Restaurateurs strive for uniqueness by continuously improving the experience given. Furthermore, Per Bengtsson argues that a genuinely

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<sup>3</sup> Interview with Per Bengtsson, PM och Vänner, 19th of May, 2010, Växjö

<sup>4</sup> The S. Pellegrino World's 50 Best Restaurants (2009)



approach is a main factor to become successful. Management, technological improvements, innovation and an aim to constantly progress are all aspects that need strong focus.

The role of the entrepreneur is also of great importance for success.

Neoclassical theory seldom integrate entrepreneurship due to limitations to do so, however, there are economists who has endeavour this subject further. Even though Alfred Marshall not explicitly brings up the role of the entrepreneur, he emphasizes the business man as the organizer of production (Lydall, 1992). Also Frank Knight stressed the importance of entrepreneurship, and decision-makers' capability to correct for uncertainty in order to avoid profit losses. According to Lydall (1992), an additional aspect of successful entrepreneurship in the long-run is possession of managerial skills. When the entrepreneur pays special attention to his employees, this gives rise to maintain quality, incentives to perform as well as create innovative ideas.

### 3 The Gourmet Country - Sweden

In order to investigate the gourmet country of Sweden, and in a descriptive way illustrate the relationship between gourmet restaurants, small-scale food producers and tourism the variables of interest must be defined. Firstly, gourmet restaurants are defined as the restaurants awarded in White Guide 2010. The best restaurants in Sweden are mostly found in the metropolitan areas where Stockholm is the culinary capital. Out of the 228 restaurants awarded by the White Guide, 61 are situated in the Stockholm area. Nonetheless, excellent food and gastronomic experiences can today be found all over the country.

Figure 3-1 below illustrates the localization pattern of Swedish restaurants acknowledged by the White Guide 2010. As expected the highest points were provided to Swedish urban regions (Stockholm, Göteborg and Malmö), followed by municipalities with high concentration of tourists (Gotland, Åre, Malung). The subsequent municipalities are either regions with high levels of tourism or regions with large universities (Umeå and Lund).

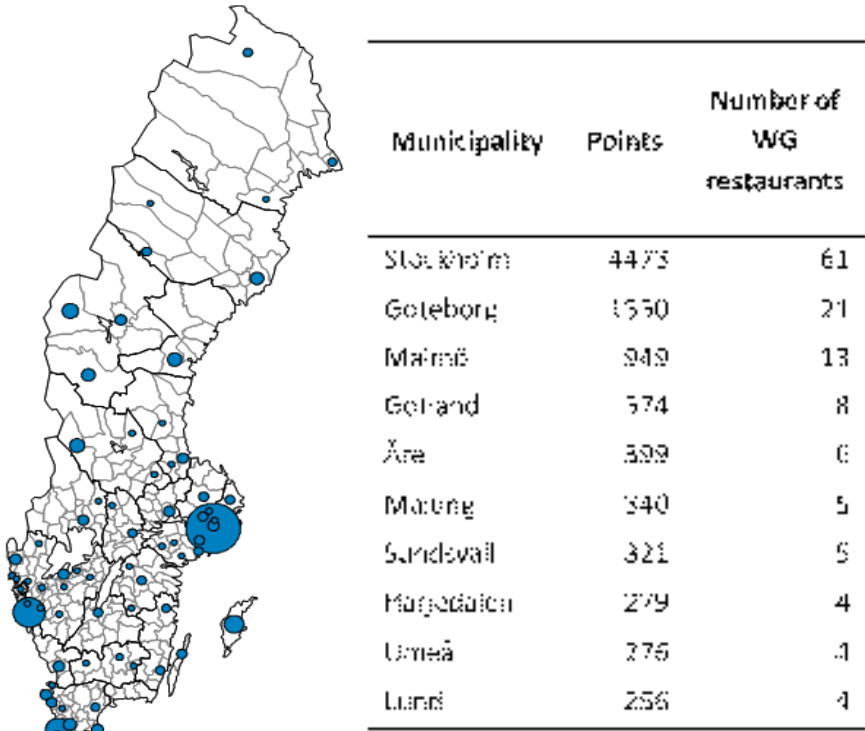


Figure 3-1; Swedish regions where gourmet restaurants are represented

Source: Author's own calculation from White Guide (2010)

Secondly this study will define small-scale producers as firms with less than ten employees<sup>5</sup> in order to focus on handicraft firms with strong focus on quality and genuinely manufactured products. Lastly, tourism is explained by the number of nights spent in hotels, lodges and camping areas. Chapter four gives further details about the variables.

In order to understand whether a region has relative national advantage in gourmet restaurants, location quotients can be calculated. This method is commonly used in order to identify specializations in local economies (Isserman, 1977). The localization quotients for concentration of (a) gourmet restaurants, (b) small scale-food production and (c) tourism are obtained from the following functions:

$$LQ (a) = \frac{\text{Number of WG restaurants in region } j \text{ divided by number of population in region } j}{\text{Number of WG restaurants in country } j \text{ divided by number of population in country } j} \quad (3.1)$$

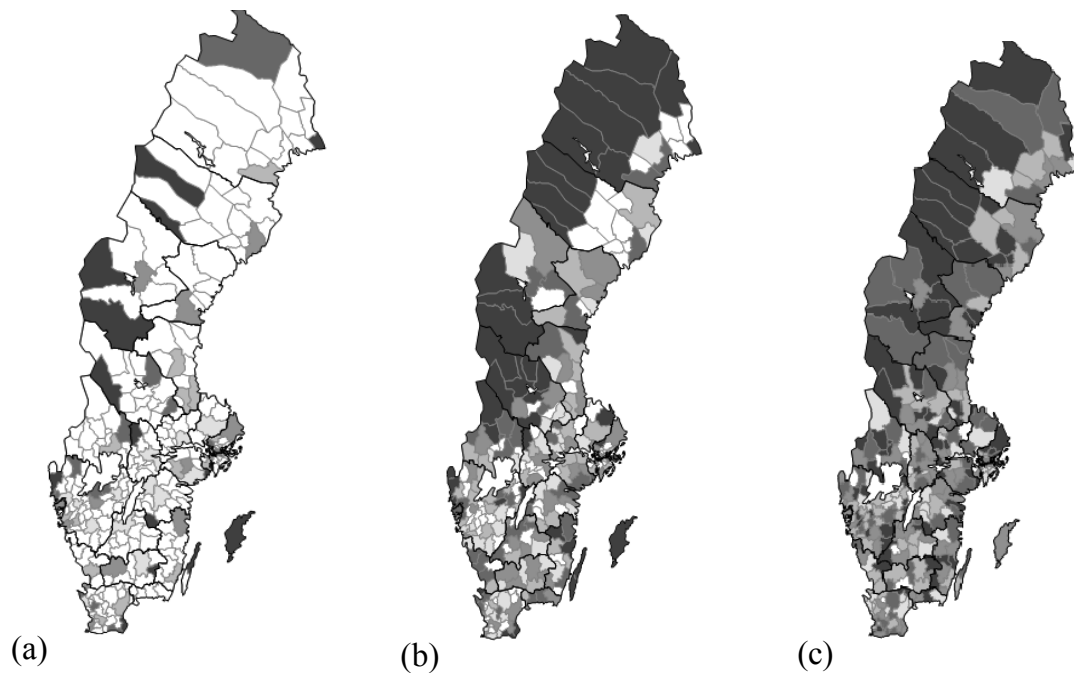
$$LQ (b) = \frac{\text{National share of small scale food producers in region } j}{\text{National share of total food producers in region } j} \quad (3.2)$$

$$LQ (c) = \frac{\text{Tourism in region } j \text{ divided by number of population in region } j}{\text{Tourism in country } j \text{ divided by number of population in country } j} \quad (3.3)$$

Simply stated, figure 3-2 shows the Swedish regions' relative advantage in terms of amount of gourmet restaurants, small-scale food production and tourism. The darker areas, the stronger concentration. Since the location quotients correct for regional size, other regions than the larger metropolitan cities prove to have strong concentration of (a), (b) and (c).

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<sup>5</sup> Recommended definitions of small and medium sized companies, European Commission (96/280/EG)



*Figure 3-2; Swedish municipalities' relative national advantage in; (a) gourmet restaurants, (b) small-scale food producers, (c) tourism*

Source: Author's own calculation from White Guide (2010) and Statistics Sweden (2009)

Most municipalities in Sweden do not have a gourmet restaurant according to the White Guide. Out of 291 municipalities, 70 have at least one gourmet restaurant and 221 none. This is illustrated by the white areas in figure 2-2. Nevertheless, one can clearly see a significant and positive relationship between areas with high concentration of gourmet restaurants and areas with high concentration of small-scale food production and tourism (displayed in the appendix, table 7-1).

Local products are generally associated with high quality and small-scale production. There is today an increase in interest of handcraft quality products produced with deliberation of the environment according to the Swedish Ministry of Agriculture (2005). A recent report state that nine out of ten Swedish consumers believe that it is of great importance to buy and consume local food (Coop, 2009). Furthermore, the majority of all gourmet restaurants pay special attention to ecological thinking, where locally produced ingredients are a matter of course. Among all awarded White Guide restaurants, 67.3% have today high or very high ecological thinking.

# 4 Method and the model

In order to estimate the variables affecting the location pattern of gourmet restaurants in Swedish rural and urban areas, a negative binomial regression model has been applied. The statistical method will mainly follow the work of (Hilbe, 2007). The number of gourmet restaurants per municipality is strongly skewed, hence an OLS-regression would be inappropriate and one would rather apply any type of Poisson analysis.

The Poisson regression is the standard method for modelling count data although the Poisson distribution assumes equality of the mean and the variance, a rare occurrence in reality. However, by analyzing the variable indicating the number of gourmet restaurants per municipality, the distribution displays signs of overdispersion where the variance is almost 20 times larger than the mean, see table 4-1.

*Table 4-1; Descriptive statistics – Number of gourmet restaurants in Sweden*

Number of gourmet restaurants per municipality	
Obs	291
Mean	0.78
Std. Dev.	3.956
Variance	15.653
Skewness	12.852
Kurtosis	188.667

Source: Author’s own calculation from the White Guide (2010)

Negative binomial regression is an extended Poisson regression that allows for overdispersion, i.e. it can account for greater variation than Poisson. The signs indicating overdispersion in the table above thus imply that a negative binomial regression method is a feasible method.

Figure 4-1 shows the right skewness; the data is believed by assumption to be crucially heteroscedastic and the variance increases with the mean (Hilbe, 2007). If one is not correcting for overdispersion this might cause an underestimation of the standard errors of the estimates. If this is true, variables may appear as significant when they in fact are not (Cameron and Trivedi, 2005).

The number of zeros for the dependent variable (amount of restaurants per municipality) in the data far violates the distributional assumption of the Poisson and the negative binomial model. See appendix, table 7-2 for frequency of counts. Nevertheless, there is an extensive negative binomial regression called zero-inflated negative binomial regression that may be applied (Hilbe, 2007).

The zero-inflated count models are two-part models. The essential idea of the model is to separate the model into two different parts. First, the model estimates a binary process (logit or probit), generating positive (1) versus zero counts (0). Either there are gourmet restaurants in a region or there is not. Secondly, the model use a count process were the negative binomial regression is estimated. Recall that the dependent variable is a count variable displaying clear signs of overdispersion, hence the negative binomial regression model was applied.

Moreover, the binary process and the count process can include different predictors. The inflation variables refer to the predictors determining the variables that have a direct effect on zero counts. In this study this refers to the reasons why there are no gourmet restaurants within a municipality. The count process on the other determines what factors cause the amount of gourmet restaurants.

The mean structure of the negative binomial regression follows the same structure as the Poisson regression model.

The predicted rate is calculated by;

$$\mu_i = E(y_i = k|x_i) = \exp(x_i\beta) \quad (4.1)$$

The negative binomial regression looks as follows:

$$P(y_i | x_i, A_i = 0) = \frac{\Gamma(y_i + \alpha^{-1})}{y_i! \Gamma(\alpha^{-1})} \left( \frac{\alpha^{-1}}{\alpha^{-1} + \mu_i} \right)^{\alpha^{-1}} \left( \frac{\mu_i}{\alpha^{-1} + \mu_i} \right)^{\alpha^{-1}} \quad (4.2)$$

## 4.1 Data

White Guide is an objective Swedish restaurant guide published yearly by Millhouse Förlag AB. The screening of restaurants and publication of the points is in many respects similar to the Guide Michelin and other restaurant guides found all over the world. In Sweden, Guide Michelin only covers restaurants in the three largest metropolitan cities and is thereby not a suitable option for this study. A large number of gourmet restaurants are found on the countryside outside the cities in Sweden; hence it is more appropriate to apply the WG classification scheme.

An objective estimation of approximately 800 restaurants, situated all over Sweden, was carried through in 2009. Thereafter, 544 restaurants out of these were presented in the 2010 edition. The points are announced for all restaurants that receive 60 or more points. The maximum points a restaurant can receive is 100.

The 100 points is divided into food, which is the largest component (maximum 40 points), beverages (maximum 20 points), service (maximum 25 points) and atmosphere and environment (maximum 15 points). Hence, the restaurants receive (scores) points based on the quality and originality of their cooking, their wine-list, the composition of the menu, the atmosphere in the restaurant, the service, general impression etc.

This analysis will use the amount of WG restaurants per municipality as dependent variable. Following previous literature, theoretical concepts and professional guidance<sup>6</sup> the explanatory variables stated below was chosen as to explain the location pattern of gourmet restaurants in Sweden. Data is taken from the White Guide and Statistics Sweden. The variable tourism was chosen as the inflation variable due to the strong, positive and significant relationship between tourism and number of gourmet restaurants as to explain the reasons why there are no gourmet restaurants in a municipality.

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<sup>6</sup> Mundlak (2000); Boniface (2003); Hall et. al. (2003); Interview with Per Bengtsson, PM och Vänner, 19th of May, 2010, Växjö

*Table 4-2; Definitions of variables*

Variable name	Definition	Expected Outcome
<b>Dependent Variable:</b>		
Restaurants	Amount of WG restaurants per municipality (2009)	
<b>Independent Variables:</b>		
Small-scale food production	Number of companies within the food industry per municipality with < 10 employees (2009)	Small-scale food production is expected to have a positive impact on the number of gourmet restaurants
Tourism	Number of nights tourists spend per municipality in hotels, lodges, camping areas (2009)	Tourism is expected to have a positive impact on the number of gourmet restaurants
Summer houses	Number of summer houses per municipalities (2009)	Summer houses is expected to have a positive impact on the number of gourmet restaurants
Access of population	Municipalities' access to population based on travel distance	Access of population is expected to have a positive impact on the number of gourmet restaurants
Income	Average income per person per municipality, tkr (2008 <sup>7</sup> )	Income is expected to have a positive impact on the number of gourmet restaurants

## 4.2 Shortcomings of the model

There are several limitations to this study. First, the dependent variable is taken from a restaurant guide aiming to cover most regions in Sweden; however, it is not a complete investigation and numerous municipalities have not been covered. There may be two reasons for this. Either there are no restaurants within a region reaching the White Guide standards, or, there are yet no restaurants being tested. This study assumes that all municipalities with no restaurants recognized by the WG possess no such restaurants, i.e. they have been given a

<sup>7</sup> Statistics Sweden has not yet published the numbers for 2009.



zero. This could pose some problems since we might exclude regions from the study that should have been included.

Second, the variable tourism only covers nights spent at hotels, lodges and camping areas, thus we are not taking nights spent at private house rentals, family and friends or harbor visits into account. Even so, the variable chosen fairly explains the location pattern of tourism in Sweden, since it takes both Swedish and foreign tourist into account. In addition, a variable for number of summer houses per municipalities has been added as to control for another part of tourism. The variables do not have a strong correlation which might imply, there are different types of tourist spending their nights in summer houses, and those in hotels, lodges and camping areas.

Lastly, the variable explaining small-scale food production in Sweden only covers firms that belongs to the food industry (SNI-10)<sup>8</sup> Consequently, numerous small-scale food producers are left out provided that they belong to another industry, for example the agriculture industry.

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<sup>8</sup> Swedish Standard Industrial Classification (SNI) 10 is the industry code of the food industry, 2009

## 5 Empirical Result and Analysis

In order to test what factors affect the location pattern of gourmet restaurants in Sweden, empirical estimations from the applied model are presented below.

*Table 5-1; Output: Zero-inflated Negative Binomial Regression*

Variable	Coefficient (Robust Std. Err.)	z	dy/dx	e <sup>^</sup> b
Small-scale food production	0.1577848* (0.028057)	5.62	0.1067946	1.1709
Tourism	0.0152589* (0.0047856)	3.19	0.0597893	1.0154
Summer houses	0.0045387* (0.0015696)	2.89	0.0030722	1.0045
Population access	0.0264276* (0.0091932)	2.88	0.0178872	1.0268
Income	-0.0182684* (0.0072482)	-2.52	-0.0123647	0.9819
Cons	3.33434* (1.423754)	2.34		
<b>Inflate (Inflation model: Logit)</b>				
Tourism	-0.1959829* (0.0909994)	-2.15		0.8220
Cons	1.539718 (.4673062)	3.29		

Log pseudolikelihood = -191.6821, Wald chi2 = 825.74, Prob > chi2 = 0.000

\*Significant coefficients

All results are statistically significant at a one percent level, with the exception of the inflated tourism variable, which is significant at a five percent level. The first half of the output is the count equation where coefficients show the factor change in the expected count for the observations with number of restaurants > 0. The output shows the variable of interest and its beta-coefficient, robust standard error, z-value, marginal effects and the e<sup>^</sup>b, which is the factor change in expected count for unit increase in X.

Among those municipalities that have gourmet restaurants, small-scale food production increases the expected rate of number of gourmet restaurants by a factor of 1.171, holding all other factors constant. Also tourism increases the expected rate of the number of gourmet restaurants but no more than by a factor of 1.015, *ceteris paribus*. Summer houses have less impact (a factor of 1.005) which is not surprising since the variable tourism include a broader selection of tourists, than just the once spending their holiday in summer houses.

Moreover, population access increases the expected rate of number of restaurants by a factor of 1.0268 which is not surprising. This may be seen as a proxy of market potential, i.e. in this case, the population able to travel from nearby to visit a certain restaurant. Consequently market potential is crucial for the incentive to open a restaurant. Small-scale food production, tourism, summer houses and population access are all although predictors of positive sign whilst income prove to have a negative relationship, decreasing the expected rate of gourmet restaurants by a factor of 0.982.

Furthermore, the negative binomial regression coefficients states that for one unit change in the variable of prediction, the difference in the logs of the explanatory variables is assumed to change by the regression coefficient given, *ceteris paribus* (Cameron and Trivedi 2005). Thus, Swedish municipalities possess about 16% more restaurants for an increase of ten (the original variable was divided by ten) small-scale producers. Tourism (here defined as in 10.000 nights) gives an increase of 1.5% more restaurants whilst Population access accounts for 2.64%. Income actually has a negative relationship with number of gourmet restaurants in Sweden -1.8%. The reasons behind this might be in line with the concept of market potential. The accessibility of purchasing power may have stronger impact for development of new gourmet restaurants rather than the purchasing power of the actual inhabitants within a certain region.

The last half of the output is the binary equation. The coefficients give the factor change in the odds of being in the always zero group with the not always zero group. The results show that tourism decreases the odds of not having a gourmet restaurant by a factor of 0.822.

The variable tourism is both included in the count process and the binary process. As shown by the output, the signs of the coefficients are in opposite directions. Since the binary process is predicting whether or not an observation belongs to the always zero counts group, a

negative sign implies higher output. The count process on the other hand predicts the number of restaurants, so a positive sign indicates a higher output (Freese and Long, 2005).

The output also demonstrates the marginal effects. In a count regression, marginal effects measure the effect of each covariate on the dependent variable. However, since both the coefficients and the factor change in expected counts have been analyzed, this is stated as complementary information to the regression output. Also the McFadden's Pseudo  $R^2$  should not be interpreted as the R-squared generally measured in an OLS-regression, thus it has not been calculated.

## 5 Conclusion

The purpose of this paper was to investigate and analyze the characteristics influencing the localization pattern of gourmet restaurants in Sweden. Following previous literature it might be concluded that culinary experiences (gourmet restaurants) can contribute to regional development and growth. To a large extent, the regression results presented replicate the beliefs of the factors impacting the number of gourmet restaurants.

The variable of interest, small-scale food production, among other characteristics such as tourism, number of summer houses, population access and income, all appear to have a significant impact on the number of gourmet restaurants within a region. Small-scale food production seems to affect the number of gourmet restaurants the most. In addition, tourism, number of summer houses and population access all have positive relationship with the amount of gourmet restaurants in a municipality whilst income seems to have a negative impact.

Although income was expected to have a positive impact on the dependent variable, the displayed results might indicate that the average income of the municipality is not of great importance. Rather might the income (purchasing power) of the nearby regions or the purchasing power of tourists affect the number of gourmet restaurants to a larger extent.

The findings suggest that gourmet restaurants are in fact to some extent dependent on the access to small-scale food producers. This naturally raises the question whether the diverse parts of the food industry have different impacts or not. Although this is not being discussed in this study, this could be a recommendation for further research.

Furthermore, this study has explored the localization pattern of gourmet restaurants by the number of awarded White Guide restaurants per municipality. Further understanding of the quality levels and the effect of municipalities reaching different levels within the world of gastronomy could be enhanced by using the amount of points scored by each municipality. Hence, this would make a superior distinction between the municipalities and the gastronomic level.

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## Appendix

*Table 7-1; Correlation Matrix of LQ (a), (b) and (c)*

	LQ (a): Gourmet restaurants	
LQ (b): Small-scale food production	Pearson corr.	0.335*
	Sig. (2-tailed)	0.005
	Obs.	70
LQ (c): Tourism	Pearson corr.	0.648*
	Sig. (2-tailed)	0.000
	Obs.	69

*Table 7-2; Frequency of counts: Number of gourmet restaurants*

Number of gourmet restaurants	Frequency	Percent
0	221	76%
1	32	11.0%
2	19	6.5%
3	9	3.1%
4	3	1.0%
5	2	0.7%
6	1	0.3%
8	1	0.3%
13	1	0.3%
21	1	0.3%
61	1	0.3%
Total	291	100%