Farm Tourism and Spatial Competition

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Abstract – **Changes in EU agricultural policies towards an increased focus on rural development issues raise questions regarding the economic impact of local and regional spatial competition. Farmers are typically price takers in the traditional markets for the major agricultural products. This is, however, not necessarily the case for "new enterprises" active in local and regional markets. This paper examines local/regional spatial competition for farm tourism. A spatial econometrics framework is applied to a hedonic pricing model. It is shown that spatial dependence affects the pricing of both *Self-catering* and *Bed & Breakfast*. However, the results indicate that local/regional competition may have a positive effect on the former but a negative effect on the latter. The findings illustrate the potential importance of local competition for rural developments studies.**

Keywords – **farm tourism, spatial competition, rural development**

I. INTRODUCTION

Rural tourism is a fast growing industry in Europe as well as in North America. Tourism and leisure consumption in general has increased due to income growth and reduced transportation costs. [1] On the supply side, structural changes within the agricultural sector during the last half century have dramatically decreased the number of farmers and when searching for alternative sources of income many farmers have diversified into alternative activities such as tourism. [1, 2] Diversification into farm tourism has been promoted by policy makers in order to counteract the economic and social challenges facing rural areas. [3, 4] In several European countries (e.g. Denmark, France, Germany and Italy) farmers have been able to receive national support in order to diversify production into tourism [5, 6]. Farm tourism is, however, not a new phenomenon but has a long standing history in many countries. [3, 4, 7]

The 20th century has been characterized by an increased concentration at the processing and retail levels of the food marketing chain. Despite volume growth and increasing specialization at farm level farmers still remain small actors in ever larger markets. However, diversifying into farm tourism implies that farmers face a different market situation where they may become potentially relatively large agents in a local or regional market. Hence, diversification into tourism implies that the competitive relation between farmers changes. At the same time the possibilities to differentiate their products generally increase considerably. Consequently, the price and thereby the profitability of farm tourism potentially depends on location both due to the characteristics of the surrounding area and the number of competitors in the area as demonstrated in a study by [8] that examined competition among driver schools.

In analyzing the pricing of tourism in general, and farm tourism in particular, it is important to consider spatial aspects. In the tourism literature many papers have adopted a hedonic approach in examining how environmental externalities of agriculture affect tourism [see e.g., 2, 9, 10]. Although some studies examining the pricing of tourism discuss spatial aspects they generally do not use spatial econometrics as done in this article. Economists have, on the other hand, examined spatial dependence from an econometric point of view in various applications such as the high-tech industry [11], policy intervention and poverty [12], and agricultural production [13].

The objective of this paper is to examine the pricing of farm tourism in Sweden explicitly taking spatial considerations into account. The study examines the pricing of the services provided by the members of the organization *Staying on a farm* (*Bo på lantgård*).

In 2005 one third of all farmers in Sweden had a diversified production including some kind of activity outside traditional farm production. Tourism and lodging accounted for 15.5% of these activities. [14] *Staying on a farm* is, as the name indicates, an organization that specifically markets farm tourism. Similar organizations can be found in many different countries [15] Members of the organization offer *Self-catering* and/ or *Bed & Breakfast*. As opposed to [16] this paper examines and compares both of these services.

Naturally, farms may offer additional services other than lodging and some are marketed by *Staying on a farm* under different themes such as fishing, conferences or horse activities. The lodging offered by each farmer is graded on a scale from one to five.

In the next section the methodology is introduced. The data is presented in section III and the model specification is explained in section IV. In section V the results are discussed and the paper ends with some concluding remarks in section VI.

II. METHODOLOGY

A hedonic pricing model is applied in order to examine what factors that affect the pricing of farm lodging in Sweden. The purpose of the study is to analyze what affects pricing in a regional market and examine what types of spatial dependencies that may be present. Naturally, the price charged by suppliers may differ depending on firm-specific factors without any direct spatial aspect. Example of such factors may be the size of operation, the type of activities offered, and the number of beds per cabin.

If the pricing of the services provided by farmers are affected by the geographic location of the farmer this can be manifested mainly in three different ways in the statistical analysis. First, variables describing the market situation specific for the local/regional market may explain the pricing behaviour. Examples of such variables are the magnitude of demand and the number of competitors in the local/regional market.

Secondly, there may exist a spatial dependence not captured by the specified model resulting in a spatial dependence in the error terms. This problem can be addressed by including the error terms as an additional explanatory variable.

Thirdly, the price charged by a supplier in a given market can partly be explained by the price of competitors in the same and/or related markets. All of these aspects are taken into account in the subsequent analysis.

Let X denote a vector of dependent variables containing variables without any explicit spatial aspect, X_A, and variables explicitly incorporating some spatial aspect, X_B. Farmers differ in many different aspects that do not depend on the location per se. For example, farmers differ in size (both pertaining to lodging and farm production), type of farm production, types of activities offered guests (hunting, conferences, fishing, boat rental etc), labour cost (hours worked per bed rented), etc. Variables that do incorporate a spatial aspect, X_B, include e.g. the number of competitors in the vicinity – be it other members of *Staying on a farm* or substitutes such as other types of *Bed & Breakfast*, youth hostels or hotels –, distance in kilometres to competitors, and average price of competitors in the region.

In order to estimate the model a general spatial autoregressive model (*SAC*) that incorporates spatial dependence in the price variable and in the disturbances is, following Anselin [17] and LeSage [18], specified as

$$\begin{aligned} P &= \rho W_a P + X\beta + u, \\ u &= \lambda W_b u + \varepsilon, \\ \varepsilon &\sim N(0, \sigma^2 I_n), \end{aligned} \tag{1}$$

where P is a $n \times 1$ vector of the dependent variable, W_a and W_b are $n \times n$ contiguity matrixes, X is a $n \times k$ matrix of the explanatory variables, and u is a $n \times 1$ vector of the residuals of an *OLS* – regression. The contiguity matrixes indicating the relative vicinity of competitors are constructed on the basis of the area code of each member of the organisation *Staying on a farm*. Although it may be argued that what constitutes a local market varies between different geographic areas it is necessary to use a common delimitation for all regions. As it is not self-evident what constitutes a local/regional market all models are evaluated using first–, second–, and third– order contiguity matrixes.

The *SAC* model encompasses several potential alternative models. If ρ but not λ is statistically significant, this would indicate that a spatial autoregressive model (*SAR*), also referred to as a mixed regressive-spatial autoregressive model, may be appropriate. On the other hand a spatial autoregressive error model (*SEM*) may be preferable if λ is statistically significant while ρ is not. In the empirical estimations different alternative functional forms found in the literature (specifically linear, log-linear, log-log) are estimated. The econometric toolbox developed by LeSage [18] is used for these estimations.

III. DATA

A survey was conducted of all farmers that where members of the organization *Staying on a farm* in 2005. At the time of the survey there were 437 registered members of *Staying on a farm*. After excluding members that responded they had exited or planned to exit, had moved, were not active or had joined the organization so recently that they could not answer the question a potentially active population of 428 members remained. The active population was

presumably even smaller as those not answering probably included for example members that were no longer active. 311 members responded to the questionnaire which corresponds to a response rate of approximately 73%. As many respondents did not provide answers to all questions the response rate to different questions varied which limited the variables that could be considered in the estimation.

Members were asked about what kind of services besides lodging they provided (e.g. activities, food), what kind of marketing channels they used, geographic location, vicinity to other types of lodging alternatives, perceptions concerning competitors, labour and other inputs, capacity, vacancy rates etc. It is evident from the results that the members constitute a quite heterogeneous group. The fact that suppliers of farm tourism are quite different is consistent with what has been found in other studies.

Members of the organization offer *Self-catering* and/or *Bed & Breakfast*. In general *Self-catering* involves offering a house/cabin for rent, most commonly per week, without breakfast. *Bed & Breakfast* more commonly involves offering a room, most frequently per night. Due to these differences between the services offered, this paper examines the different services offered, i.e. *self-catering*, with a sample of 205 respondents and *Bed & Breakfast* with a sample of 85 respondents.

The variables included in the estimation were selected in order to reflect the characteristics of demand, the competitive situation, characteristics of the farm, and the services offered. Descriptive statistics of the data used in the estimations are presented in Table 1 – 2 for all respondents and for the samples used. Overall the characteristics of the samples do not seem to differ in any major respects from the characteristics of all respondents offering a service.

Table 1 Descriptive statistics: *Self-catering*

	Sample used in estimations		All respondents	
	average	st.dev	average	st.dev
Price per cabin per week	3559,29	776,68	3542,41	750,23
Guest nights in region[a)]	6,41	1,41	6,41	1,43
Marketing via firm specific web page	0,55	0,50	0,52	0,50
additional channels	0,55	0,50	0,55	0,50
Regional competition [b)]	50,07	31,73	48,73	30,87
Local competition [c)]	2,10	2,07	2,02	1,96
Commercial meat production	0,66	0,47	0,65	0,48
Commercial cash crop production	0,60	0,49	0,59	0,49
Number of cabins	1,44	1,09	1,49	1,18
Also offers *Bed & Breakfast*	0,29	0,46	0,30	0,46
Offers no activities	0,21	0,41	0,24	0,43
farm related activities	0,59	0,49	0,57	0,50
Size of cabin, average number of beds [d)]	6,34	1,64	6,34	1,71
Hours worked [e)]	11,63	16,26	11,45	15,95
Relative rating [f)]	0,00	0,15	0,00	0,15
No rating	0,06	0,24	0,06	0,25

a) Million guest nights in cabins, hostels etc. [19]. b) Number of cabins and hostels per 100*100 km. c) Farms within 5 km offering lodging. d) Average number of beds including extra beds per cabin. c) During peak season. e) Relative quality rating = (Rating – average rating for cabins/ (Average rating for cabins).

Table 2 Descriptive statistics: *Bed & Breakfast*

	Sample used in estimations		All respondents	
	averagel	st.dev.	Average	st.dev.
Price per night	296,61	38,80	296,18	37,22
Guest nights in region [a)]	6,59	1,44	6,56	1,44
Marketing via firm specific web page	0,65	0,48	0,63	0,49
additional channels	0,77	0,42	0,77	0,42
Regional competition [b)]	46,74	31,40	46,15	30,85
Local competition [c)]	2,12	1,88	2,01	1,77
Commercial livestock production	0,51	0,50	0,50	0,50
Commercial crop farming	0,57	0,50	0,57	0,50
Number of rooms	3,93	2,75	3,93	2,90
Also offers *Self-catering*	0,55	0,50	0,55	0,50
Offers no activities	0,35	0,48	0,35	0,48
farm related activities	0,37	0,49	0,37	0,49
Extreme price [d)]	0,04	0,19	0,03	0,17
Hours worked [e)]	28,12	27,29	27,88	26,93
Relative rating [f)]	0,00	0,14	0,00	0,15
No rating	0,11	0,31	0,12	0,33

a) Million guest nights in cabins, hostels etc. [19]. b) Number of cabins and hostels per 100*100 km. c) Farms within 5 km offering lodging. d) Dummy variable for extreme observations < average price – 2* st. dev. e) During peak season. f) Relative rating = (Rating – Average rating for *Bed & Breakfast*)/ (Average rating for *Bed & Breakfast*).

In order to characterize the differences in demand, guest nights in the region and additional marketing channels other than those provided by *Staying on a farm* were included in the analysis. The variable guest nights in the region refers to the total number of over nights in hostels and cabins etc in each region in 2005 according to *Statistics Sweden* [19]. The additional marketing channels were captured by two dummy variables, one accounting for whether the member of *Staying on a farm* used firm specific marketing through the use of a private web-page, and another dummy variable accounting for if other channels (such as other marketing organizations, cooperation with travel agencies etc) were used.

Two variables were included in order to account for differences in the competitive situation. Regional competition measures the number of competitors (cabins and hostels) per ten thousand square kilometres. Local competition measures the number of farms within five kilometres offering lodging to tourists.

Four variables were included in order to capture the characteristics of the farm. The type of agricultural production conducted on the farm was described by dummy variables for commercial livestock production and commercial cash crop production. The size of the tourism activity on the farm was captured by the number of cabins and rooms, respectively. Furthermore, a dummy variable was included to account for if both *Self – catering* and *Bed & Breakfast* was offered.

The final category of independent variables refers to the characteristics of the service offered. Two dummy variables were included to take into account if additional services were offered to tourist in the form of activities. Specifically, one dummy variable accounts for the case in which no activities are offered and one dummy variable accounts for the case in which farm related activities are offered. Consequently, if both these dummy variable are zero the farm offers activities that are not farm related.

In the case of *Self – catering* the number of beds in the cabin were included as a dependent variable (as the dependent variable for *Self – catering* was price per cabin, which presumably varies with the number of beds in a cabin, while the dependent variable in the

case of *Bed & Breakfast* was the price for a bed in a double room). In the estimation of *Bed & Breakfast* a dummy variable was included to account for abnormally low prices. As a proxy for the service offered a variable capturing the number of hours worked per week during peak season was included in the estimation.

Finally, the rating of the standard of the lodging as made by the organisation *Staying on a farm* was included in the analysis. Specifically, the relative rating measured as (Rating of the farm – average rating) / (Average rating) was included as an independent variable. As not all farms were rated at the time of the survey a dummy variable was included to account for these observations.

IV. MODEL SPECIFICATION

In order to select an appropriate model *OLS* – regressions were initially estimated (linear, log-linear, log-log). Testing for heteroscedasticity and multicollinearity reveals no evidence of the former and that the latter is more severe in the logarithmic models.[1] Hence, the following presentation focuses on the results of the linear models. The test results for these are shown in Table 3.[2]

Table 3 Test for heteroscedasticity and multicollinearity given a linear specification

	White's Heterosced Test	Multi-collinearity
	Statistica (prob)	Max Condition Index
B & B	106,1 (0,6147)	23,79
Self-catering	126,2 (0,4042)	26,10

In the case of *Self-catering* the null hypothesis of no spatial correlation in the *OLS* – residuals is decisively rejected. In Table 4 two different tests are presented using first–, second–, and third–order contiguity matrixes. Consequently it is necessary to evaluate alternative models that potentially can account for this spatial correlation. Hence, a spatial autoregressive error model (*SEM*), obtained by setting $\rho = 0$ in the *SAC* model, is estimated.

Table 4 *Self-catering*:
Test of spatial correlation in the *OLS* - residuals

	W1	W2	W3
Morans I-statistica	4,37833	5,66185	5,85678
Marginal Prob	0,00001	0,00000	0,00000
LR statistica	14,7752	20,63206	15,73894
Marginal Prob	0,00012	0,00001	0,00007

W1, W2, and W3 denote the contiguity matrices of first–, second–, and third–order, respectively.

That *OLS* is not appropriate is further corroborated by the fact that λ is statistically significant in the *SEM* regardless of which contiguity matrix that is used. As the results indicate that *SEM* may potentially be an appropriate model, the estimates obtained using contiguity matrix *W2* are reported in table 6. It is, however, necessary to examine whether an autoregressive term should be included in the specification. Hence, a complete *SAC* model is estimated.[3] The results of this estimation given $P = \rho\, W3\, P + X\beta + u$, $u = \lambda\, W2\, u + \varepsilon$ are displayed in table 6 along with the results from the *SEM* model. The fact that ρ as well as λ are statistically significant indicates that a *SAC* model may be appropriate.

A comparison of the results of the *SEM* and the *SAC* estimations reveals that the latter has a smaller variance, that the models have similar R^2-values, and that the parameter estimates have the same signs and are of similar magnitude in the two models. Given these findings and given that ρ is highly statistically significant, the following presentation focuses on the *SAC*-model. Before proceeding with the economic interpretation of the parameter values of this model some comments on the stability of the model given alternative specifications may be in place. The conclusion that *SAC* is appropriate is robust with respect to the signs of the parameter estimates, to changes in the contiguity matrix used and to whether linear or logarithmic specifications are used.

A similar approach is used in order to find an appropriate model for farms offering *Bed & Breakfast*. The null hypothesis of no spatial correlation cannot be refuted for any of the contiguity matrixes at the 10% level of significance as shown in Table 5. This indicates that spatial correlation may not be a problem that is necessary to take into account in estimating the hedonic pricing model.

[1] An index > 30 indicates potentially considerable problems of multicollinearity [20, 21, 22].

[2] As argued by Cropper *et al* [23] a linear specification may be preferable when some attributes are replaced by proxies.

[3] A *SAR* model indicated spatial correlation in the error terms.

Table 5 *Bed & Breakfast*:
Test of spatial correlation in the *OLS* – residuals

	W1	W2	W3
Morans I-statistica	-0,92414	-0,82083	-0,94478
Marginal Prob	0,35541	0,41174	0,34477
LR statistica	1,583273	1,60448	2,60371
Marginal Prob	0,20829	0,20527	0,10661

W1, W2, and W3 denote the contiguity matrices of first–, second–, and third–order, respectively.

In order to verify that this is the case a *SEM* is estimated. The parameter λ which is the coefficient on the spatially correlated error terms, is significant given a third-order contiguity matrix. Given the conflicting evidence it is not self-evident which of the *SEM* and *OLS* models that is preferable. The models yield similar results in terms of signs on the parameters and which parameters are statistically significant. As *SEM* produces a smaller variance and a somewhat higher R^2 the presentation of the empirical results in the next section focuses on this model.[4]

V. RESULTS

Examining alternative specifications leads to the conclusion that spatial competition and spatial dependence is important for the pricing farm tourism. The results reveal both that there are independent variables measuring spatial competition that are statistically significant, and that alternatives to *OLS* estimations should be considered in order to take spatial dependence into account. In the following we first discuss the results obtained for *Self – catering*, focusing on the *SAC* model, and then the results pertaining to *Bed & Breakfast*, focusing on the *SEM* model.

The results for *Self-catering* are shown in Table 6. The results reveal strong spatial dependence as both λ and ρ are highly statistically significant with p-values < 0.01.

The number of guest nights in the region has a positive effect on the price as economic theory would suggest. Many farms use additional marketing channels apart from the marketing services provided by the organization *Staying on a farm*. Such additional marketing activities are expected to have a positive effect on the price as it may increase demand (guest nights in the region). The estimations do indicate that firm specific web – based marketing, which is a low cost alternative, has a positive impact on price. Use of other marketing channels does, however, have a negative impact on the price. A possible explanation for the latter may be that farms located in less attractive areas face a lower demand which requires more extensive marketing efforts.

The degree of competition is expected to have a negative impact on the price. Regional competition is not found to have any statistically significant effect (at the 10% level) on price (although the *SAC* model has the expected sign). Somewhat surprisingly the results indicate that the extent of local competition in the immediate vicinity has a positive effect on the price. This may be explained by the fact that local characteristics, which are different from the features captured by the number of tourists in the extended region, play an important role for pricing and that synergy effects between farms offering housing may exist.

Commercial livestock production displays a negative impact on the price of lodging which is in accordance with other studies. Although the estimations indicate a positive effect of commercial crop – farming it was not found to be statistically significant. Furthermore, the size of the operation does not affect the price of the service. There seems to be no synergy effect offering both *Self – catering* and *Bed & Breakfast*.

A central aspect of the concept of *Staying on a farm* is to offer guests additional services in the form of different activities. Offering activities related to the farm does not affect the price which can be interpreted as this activity being part of "the basic package". A possible explanation to that offering "no activities" does not have a negative impact on the price may be that farms emphasize lodging as the core business and consider activities as complementary services charged separately. The study does not indicate that the number of hours, as an indicator of the quality of service, have any statistically significant effect on the price.

The size of the service as measured by the number of beds in a cabin is found to have a positive effect on the price. Furthermore, the quality of the service as measured by the relative rating made by *Staying on a farm* has a considerable positive impact on the price.

[4] SAC models were also estimated but ρ was not significant for any of the contiguity matrices.

Table 6 Estimation results: *Self – catering*

Variable	*SEM (W2)*	*SAC(W3/W2)*
Constant	1388,78***	887,58**
Guest nights in region [a)]	50,369488	87,127254*
Marketing via firm specific web page	327,232683***	315,643752***
additional channels	-223,747930***	-224,158560***
Regional competition [b)]	0,921168	-1,435264
Local competition [c)]	53,186653***	50,423846**
Commercial livestock production	-171,143886*	-174,978399*
Commercial crop–farming	148,162740*	140,315274
Number of cabins	34,417185	20,656672
Also offers *Bed & Breakfast*	-133,196728	-93,990817
Offers no activities	352,681958***	315,816007**
farm related activities	156,035830	150,499515
Size of cabin (beds) [d)]	216,991007***	215,438767***
Hours worked [e)]	2,421616	1,873762
Relative rating [f)]	636,260797**	680,080328**
No rating	492,400604***	426,854409**
ρ		0,155940***
λ	0,611999***	0,623000***
R^2	0,4559	0,4749
Adj R^2	0,4127	0,4333
σ^2	326634	315187

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10 % level.
a) Million guest nights in cabins, hostels etc. [19]. b) Number of cabins and hostels per 100*100 km. c) Farms within 5 km offering lodging. d) Average number of beds including extra beds per cabin. c) During peak season. e) Relative quality rating = (Rating – average rating for cabins/ (Average rating for cabins).

Table 7 Estimation results: *Bed & Breakfast*

Variabel	*OLS*	*SEM (W3)*
Constant	282.925214***	280.829559***
Guest nights in region [a)]	3.763031*	4.150193*
Marketing via firm specific web page	7.418224	8.720187
additional channels	-15.370208**	-13.638642**
Regional competition [b)]	-0.329195***	-0.370732***
Local competition [c)]	-0.325593	-0.298861
Commercial livestock production	-6.623923	-6.837196
Commercial crop–farming	20.020077***	21.281593***
Number of rooms	-0.374633	-0.552416
Also offers *Self-catering*	13.539665**	14.345476*
Offers no activities	-2.576347	-3.430480
farm related activities	3.997488	3.629049
Extreme price [d)]	-77.794796***	-78.824050***
Hours worked [e)]	0.010430	0.000999
Relative rating [f)]	56.892194***	58.453530***
λ		-0.348972**
R^2	0.4939	0.5144
Adj R^2	0.4216	0.4450
σ^2	870.7328	724.6966

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10 % level.
a) Million guest nights in cabins, hostels etc. [19]. b) Number of cabins and hostels per 100*100 km. c) Farms within 5 km offering lodging. d) Dummy variable for extreme observations < average price – 2* st. dev. e) During peak season. f) Relative rating = (Rating – Average rating for *Bed & Breakfast*)/ (Average rating for *Bed & Breakfast*).

Rather similar results are found for the farms offering *Bed & Breakfast.* These results are displayed in Table 7. Spatial correlation is highly significant with a p-value < 0.01 for the estimate of λ.

As for *Self – catering* the magnitude of the demand in the region has a positive and statistically significant impact on the price. Use of additional marketing channels seems to have similar effects as for farms offering *Self – catering*. While the results indicate that additional marketing channels other than firm – specific web pages have a statistically significant negative effect, firm – specific web pages seems to have no statistically significant effect (although the parameter estimate is positive as in the case for *Self – catering*).

The estimates of both regional and local competition indicate that competition as expected has a negative impact on price. Although local competition, measured as the number of farms in the immediate vicinity that offers lodging, indicates a negative impact on the price this effect is not statistically significant. The regional competition, on the other hand, is highly statistically significant with a p-value < 0.01. Hence, the results support the notion that an increasing degree of regional competition has a negative impact on the price level for *Bed & breakfast* on farms.

Farms specialized in cash crop production appear to have an advantage in offering *Bed & Breakfast*. They on average charge an additional 21.3 SEK/night and this effect is highly statistically significant with a p-value < 0.01. Commercial livestock production is not found to have a statistically significant impact on price although the sign on the parameter value is positive. A plausible explanation for a non-positive impact for farms with livestock production and a positive impact for farms with crop – production may be that cash crop farms with less diversified production are able to offer a service of a higher quality motivating a higher price compared to livestock farms. The latter category of farms may operate a more diversified production system that is even more demanding in terms of labour as well as managerial efforts.

The size of operation related tourism, as measured by the number of rooms offered, shows an expected negative impact but this effect is not statistically significant. The results show that the dummy variable taking into account if also *Self – catering* is offered is positive and statistically significant (10% level) indicating that there are no synergy effects in offering both kinds of services.

The results reveal that the level of activities at the farm does not appear to have any statistically significant impact on the price. This result may be explained by the fact that guests at *Bed & Breakfast* typically stay for a shorter time compared to *Self – catering*. In fact, approximately 50% of the guests at *Bed & Breakfast* stay for only one night according to the conducted survey. For *Self – catering* the corresponding figure is approximately 15%. The number of hours the supplier spends on providing lodging does not seem to have any statistically significant effect on the price. Finally, the results show a clear and statistically significant reward for offering a high level of quality of the lodging as measured by the rating made by *Staying on a farm*.

VI. CONCLUSIONS

In conclusion, this study show that it is important to consider the spatial aspects of competition when econometrically analyzing the pricing of "new enterprises" such as farm tourism. Furthermore, the results indicate that the pricing of farm lodging is affected by the characteristics of the local area, marketing efforts, the quality rating of the service, and the farm type. Policy makers tend to promote rural development e.g. for environmental and recreational purposes and rural tourism may be an important element in promoting rural and regional development.

The results of this study indicate that while regional/local competition may, as suggested by economic theory, have a negative impact on suppliers of *Bed & Breakfast* it may rather have the reverse effect on suppliers of *Self – catering*. The economic effect of the local competition on the former has the expected negative impact on the price charged although it is not statistically significant. An interesting issue is to what extent this result is due to the fact that the *Bed & Breakfast* industry is still rather limited at the local geographical area.

Irrespective of the extent of local/regional competition some additional results of substantial relevance are found. First of all, it is quite apparent from the analysis that quality control is of great importance for the success (in terms of a higher price) of "new enterprises". The impact of the quality rating of the lodging is highly significant for both types of enterprises examined. One unit increase in the quality

rating increases the effective price with approximately 20 % irrespective of the type of enterprise. Furthermore, the notion that already highly diversified farms with for example livestock production would be able to benefit even more from operating farm tourism is to some extent challenged by the empirical findings. The results indicate that excessive diversification may have an adverse impact on the price charged. Hence, caution need to be exercised by policy makers when promoting "new enterprises" in structurally different agricultural areas.

In general, the results raise the question to what extent "new enterprises" should be policy or demand driven. If these enterprises are policy driven there may be a concern that the effectiveness of the policy is mitigated by the impact of local/regional competition. Hence, given the increasing interest in "new enterprises" it is important that economists pay more attention to issues relating to spatial dependence and local/regional competition since these factors may adversely affect the potential of "new enterprises".

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