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THE DRIVERS OF RURAL ACCOMMODATION DEVELOPMENT IN ROMANIA: A PRELIMINARY STUDY – PART 2

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ABSTRACT. The present paper continues the work of Pop et al. (2019) on what concerns the drivers of rural accommodation development in Romania. The study covers the same period: 2005 to 2019. This study introduces a new factor / driver: the accessibility of communes via the national and county road network.

Similar to the findings of Pop et al. (2019), the 2008 and 2012 ranks were established based on the existing tourist attractions. The 2012 rank is strongly influenced by 2008 ranks and, under the present study, by accessibility. Though, the influence of both ranks on lodgings (both under NIS and MoT data) remains weak to very weak hence suggesting the need to introduce new factors in order to explain the lodging development in rural areas.

Keywords: *rural tourism, lodging, resources, Romania*

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Introduction

The present paper continues the work of Pop et al. (2019) on what concerns the drivers of rural accommodation development in Romania. The study covers the same period: 2005 to 2019.

This study introduces a new factor / driver: the accessibility of communes via the national and county road network. This is applied in combination with the factors / drivers of the previous study on the accommodation data set provided by the National Institute of Statistics (NIS).

It also analyses the impact of the previously identified drivers (including the new factor) on a new set of data regarding the accommodation facilities, the data provided by the Ministry of Tourism (MoT; this is a generic abbreviation for all the authorities in charge with tourism between 2005 and 2019, since tourism had either a stand alone ministry or was integrated in various other ministries, depending on the vision of diverse governments).

In the space of less than one year since the publication of the previous study at the end of 2019, to the best knowledge of the authors, no important advances appeared regarding the in-depth investigation of drivers of rural accommodation development in Romania.

For the purpose of this study, the ideas expressed in the previous paper regarding the benefits of diversification brought by tourism to the rural economy (Panyik et al. 2011) and the tourism complementarity to the existing economic activities (Hall 2004; Tao & Wall 2009) remain important. Also of importance remains the fact that rural tourism attractions are brought forth by the closeness to nature, new cultural experiences and intangible heritage (Figueiredo et al. 2013) allowing the advance of various forms of recreation (Banski & Bednarek-Szczepanska 2013).

The number of communes for this study remains the same as for the previous study, 2,861 and the data regarding the identified tourist attractions remains the same, as Annex 1 shows.

The new data regarding the accessibility of these communes via the network of national and county roads show that only 24 communes (0.84%) are not located on or in the close proximity of (5 km or less) national and / or county roads. Therefore, the majority of Romanian communes are accessible via the main road networks.

According to MoT data, the number of communes without an accommodation facility was of 1,694 at the end of 2019. The number of remaining communes, of 1,167, registered at least one lodging facility, of which only 9 communes registered 30 to 49 accommodations, while other 9 registered 50 or more lodgings. MoT data indicate an extra number of 175 communes with registered accommodation facilities compared with NIS data. This discrepancy between the two databases have various causes as discussed by Pop et al. (2017) and are not discussed within this paper. The data regarding both series of data (provided by NIS and MoT) are available in Annex 2.

MoT data, similar to NIS data, show an increase in the number of communes with registered accommodation, from 538 in 2005 to 1,066 in 2019 (98.14%). The growth rate based on MoT data is only slightly higher than the rate calculated based on NIS data (95.46%). The information is available in Annex 3. Based on MoT data, no county registered a decrease in the number of communes with lodging facilities. However, for two counties, Teleorman and Olt, the growth rate could not be calculated since in both cases the number of communes is 0 in 2005.

Some extreme situations can also be highlighted: 119 communes, with identified tourist attractions between 10 and 48, have no registered accommodation facilities, according to MoT data. Only 2 of these communes are not accessible via national and/or county roads. The number is lower than the number indicated by NIS of 146 communes in the same situation. At the other end of the spectrum, MoT indicates also 139 communes with no tourist potential, similar with the number based on NIS data. Nonetheless, the number of these communes which registered at least 1 lodging facility is of 33, slightly higher that the 27 communes in a similar situation based on NIS data.

The research question remains the same as formulated in the previous study: which are the drivers of the accommodation development in rural areas in Romania?

To the identified drivers / factors in the first study, in this one we added the accessibility factor via the network of national & county roads and the new combination of factors was applied to the data series of accommodation facilities based on NIS data and on MoT data.

Similar to the findings of Pop et al.(2019), the 2008 and 2012 ranks were established based on the existing tourist attractions. The 2012 rank is strongly influenced by 2008 ranks and, under the present study, by accessibility. Though, the influence of both ranks on lodgings (both under NIS and MoT data) remains weak to very weak hence suggesting the need to introduce new factors in order to explain the lodging development in rural areas.

Material and methods

All the 2,861 communes identified in the previous study by Pop et al. (2019) are included in the present study also.

The points 1 to 9 from Pop et al. (2019, pp.82-83) regarding the extracted data remain the same and will be reproduced below:

1. the accommodation units, based on NIS data via Tempo-online, for the years 2005, 2010, 2015, and 2019. The start year 2005 was chosen for the following reasons: a) is the year before the publication of the Master-Plan for Tourism in Romania 2007-2026; b) the first database with the accommodation units offered by the Ministry of Tourism/National Authority for Tourism (MoT/NAT) is available for 2005; no comparisons previous to 2005 are possible between the data offered by NIS and MoT/NAT; c) by the end of 2005 almost all administrative units' upgrades (from communes to towns or from villages to communes) were completed; the very few registered in 2006 have no important consequences on the study.

2. the 2008 ranking and 2012 ranking for the communes; both rankings quantify the communes' tourist potential based on a number of points; the 2008 ranking uses the 1 to 10 scale; the 2012 ranking uses a scale from 1 to 56.4, though the majority of the 948 ranked communes have between 20 and 35 points. No explanation could be found regarding how the two rankings were established. Moreover, the assignment of rankings in 2008 and 2012 seems not to follow a uniform process: while 27 communes declared resorts (either of local or national interest) were not taken into consideration by the 2008 ranking, the 2012 ranking assigned points to 25 of these communes, while leaving 3 resorts of local interest not ranked.

3. the protected natural areas based on the Romanian Government Decision 1284/2007 and the Order 46/2016 issued by the Environment Ministry.

4. the historic monuments made available by the Ministry of Culture at https://patrimoniu.ro/monumente-istorice/lista-monumentelor-istorice

5. the museums were not included in this study because the inventory offered by the Romanian National Institute of Statistics is clearly incomplete, excluding local museums, based on the local communities' efforts to preserve various historic, cultural, and natural attractions (see Pop & Balint, 2020 in press)

6. the recognized wine regions, vineyards and independent wine centers as announced by the National Office of Wine and Wine Products through the Order 1205/2018.

7. the recognized sources of mineral waters in Romania provided by the National Agency for Mineral Resources through the Orders 175/2008 and 139/2018.

8. the balneary potential based on a range of sources crossed with the information regarding the mineral waters since no official list for the localities with spa/wellness resources could be found.

9. the status of resort (either of national or local interest) as provided by MoT/NAT and the last updates for 2019 provided by http://turismbalneo.ro

For the present study two more series of data were extracted, as follow:

10. the accommodation units, based on MoT information, were extracted for the years 2005, 2010, 2015 and 2019.

11. the communes located on or in the near proximity of national and county roads were extracted based on the national road network available at: http://www.cnadnr.ro/ro/retea-administrata-drumuri-nationale; the maps of communes and allocated villages were further used for the identification of rural localities on the county roads, distinguished by their abbreviation (DJ from the Romanian drumuri judetene). While a list of communes situated at 25 to 30 km from the nearest urban locality is available within a 2014 report form the Ministry of Regional Development and Public Administration, a random verification of the information found inexactness and therefore the respective list was discarded for the

present study. The railroad network was not taken into consideration due to the continuing decrease in local train services during the past two decades in favor of personal cars and bus services.

The three points mentioning the processing of extracted data in Pop et al. (2019, pp.83-84) also remain the same for the present study and will be reproduced bellow:

1. for the NIS accommodation units, an average for the four observations was calculated; however, when at least one accommodation unit was registered in any of the four years, the average was considered 1.

2. for the 2008 ranking the following conventions were applied: a) in the cases of 10 communes without ranking in 2008, the lack of ranking was replaced with 0; b) in the case of the localities declared resorts for which no 2008 rank was available, the lack of ranking was replaced with an average number of points (6) resulting from taking into consideration the ranking available for the localities declared resorts later than 2008; this processing was applied for 28 communes.

3. a variable called 'extra-resources' was created in order to measure the influence of following potential tourist resources: the presence of the vineyards/independent wine centers; the existence of mineral waters and balneary potential; the status of resort for the respective locality; the presence of a natural or cultural World Heritage Site (WHS). For each of these tourist resources, 1 point was allocated. Though the lists of protected areas and of historic monuments include the WHS, it was considered that the inclusion of a certain natural area or a cultural monument on the WHS list enhances the tourist potential of the respective locality/localities as shown by Iorio & Corsale (2013), Reyes (2014). Therefore, the maximum number of points for this variable (extra-resources) is 4.

For the present study two more data processing were used, as follows:

4. for the MoT accommodation units, also an average was calculated for the four observations (2005, 2010, 2015 and 2019); the same treatment applied for NIS accommodation was used for MoT accommodations: when at least one accommodation unit was registered in any of the four years, the average was considered 1.

5. a series of data called ‘roads’ combining the access via national and county roads. The decision to combine the access (via national and county roads) came from the fact that, due to European Union funds, the

county roads are gradually improving; while this is not true for all the regions, the county roads ensure a reasonable connection among communes and villages outside the national road network. Therefore, the series of data called 'roads' was created based on the following points:

- for the communes situated on or near by (5 km or less) national roads = 3 points
- for the communes situated on or near by (5 km or less) national road branches = 2 points
- for the communes situated on or near by (5 km or less) secondary national roads = 1 point

If a commune was located at the crossroad of any of the alternative mentioned above, the number of points was added since it increased the accessibility of the respective rural area.

- for the communes situated on a county road = 0.25 points

If a commune was located at the crossroad of two county roads the allocated points were 0.5, while if at the crossroad of multiple county roads the number of allocated points was of 1 since very few communes were crossed by more than 4 county roads.

If a commune was located on any type of national road and was also crossed by a county road, only the points for the location on national roads were taken into consideration.

Similar with the previous study of Pop et al.(2019), for the present study the communes were classified in 3 groups, as follow: a) the one including all the 2.861 localities; b) the second group includes the 1,913 localities with no 2012 rankings, and c) the third group including the 948 localities ranked in 2012.

The same hypotheses were formulated as in the previous study of Pop et al. (2019, pp.84-85), though for the present study the accessibility via roads was added as a new factor. Furthermore, the hypotheses were extended at MoT data series. The hypotheses for the present study are:

H1 (for all communes): 2008 rank is influenced by the tourist resources and roads (accessibility)

H1.1 (for the 1,913 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)

H1.2 (for the 948 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)

H2 (for the 948 communes): 2012 rank is influenced by the tourist resources and roads (accessibility)

H2.1 (for the 948 communes): 2012 rank is influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3 (for all communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3bis (for all communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.1 (for the 1,913 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.1bis (for the 1,913 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.2 (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.2bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.2a (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)

H3.2a-bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)

The above hypotheses were tested using OLS (ordinary least square) multiple regression. Further, similar with the previous study of Pop et al. (2019), the results were completed with the application of PLS-SEM (partial least squares-structural equation modeling) which allows more complex links between the investigated variables. The names of the variables are presented in Annex 6 and those of latent variables are presented in Annex 9 to 12.

Tourist resources, lodgings and accessibility in rural areas by county, regions and macro-regions revisited

Annex 1 of the present paper includes a new column completing the information in Annex 1 of Pop et al. (2019). This new information is in column two and presents the number of communes, within each

county, respectively region and macro-region, located on (national and county) road networks. The data indicates a high level of accessibility of Romania's rural localities since only 24 communes (0.84%) are currently not located on national and/or county roads.

Macro-region 2 is the one with the highest number of 13 communes outside the networks of national and county roads. This number is split almost equally between the component regions: North-East with 6 such communes and South-East with 7 communes. The South-East region including also the counties with the highest number of communes outside the national and county roads: Buzau and Tulcea with 3 communes each. Macro-region 1 follows with a number of 7 communes not located on national and/or county roads, Center region concentrating 5 of these communes. Macro-region 4 has only 3 communes outside the national and/or county road networks, all located in South-West region, while Macro-region 3 has only 1 commune not located on the considered road networks.

The information regarding the communes with natural protected areas, registered historic monuments and being part of registered vineyards and registered wine centers remains unchanged, as presented by Pop et al. (2019).

The profile of these 24 communes located outside the national and county road networks is mixed: only 5 communes are part of the group with of 139 communes with no identified tourist attractions; 9 communes have been ranked in 2012, with a ranking ranging between 14 and 36.22; the fact that 3 communes from Tulcea county are within this group is not unexpected since the water transportation is more common within the county covering the Danube Delta. Nonetheless, the most frequent feature for these communes is the lack of accommodation facilities, 18 of the 24 communes having zero lodgings either under NIS data or MoT data. This is not an unexpected situation since the accessibility to these communes is poor.

The information in Annex 2 remains unchanged for the columns 1 to 5 while for the columns 6 to 10 new information regarding the communes with lodgings registered under MoT database was introduced. The information offered by MoT data indicates a decrease with 175 communes for 0 lodging communes. These 175 increase the number of

communes with lodgings as follow: a surplus of 53 communes for the category of communes with 1 lodging; a surplus of 105 communes for the communes with 2 to 19 lodgings; and a surplus of 17 communes for those localities with at least 20 lodgings. By Macro-regions, the situation is the following: Macro-region 1 registered the highest decrease of 0 lodging communes, with 65 communes; within this Macro-region, North-West region has the highest decrease, of 42 communes; Macro-region 2 follows with a decrease of 54 communes; on the third place is Macro-region 4 with a decrease of 31 communes, 20 of these communes being in South-West region; Macro-region 3 has the lowest decrease, of 25 communes, with 22 of these communes in South-Muntenia region. At county level, 6 counties (Bihor, Maramures, Covasna, Suceava, Vrancea, and Prahova) have a decrease in 0 lodging communes between 10 and 14, while at the other end of the spectrum 4 counties (Vaslui, Arges, Teleorman, and Olt) registered and increase of 0 lodging communes between 1 and 2. For other 3 counties (Sibiu, Buzau, and Arad) no changes in the number of 0 lodging communes was registered.

The difference of 175 communes seems not to be a very large one. Though it represent a decrease of 0 lodging communes of about 6%. As mentioned within the paragraph above, these decrease in 0 lodging communes was counterbalanced with a similar increase in the total number of communes with lodgings, the communes with 2 to 19 lodgings having the highest addition of 105 communes. It is worth noting that the same pattern can be found within the Macro-regions 1 and 4 where the communes with 2 to 19 lodgings increased with 53 and respectively with 25 communes. Macro-region 4 it is outside this trend, the communes with 1 lodgings having the highest gain of 36 communes. It is also worth noting that, overall, at national and macro-region levels the number of communes with 1 lodging increased, at region level there a 3 exceptions: Center region which registered a decrease in the number of 1 lodging communes with 11 communes (in favor of an increase with 8 communes in the category of at least 20 lodging communes), Ilfov county and West region where the number of 1 lodging communes decreased with 1 commune.

Is also interesting to mention that using MoT data, the number of communes with at least 20 lodgings almost double, to 37 compared with the 20 communes identified based on NIS data. According to MoT data, the leading macro-region is now Macro-region 1, followed by Macro-

region 2, while the remaining two macro-regions (3 and 4) are lagging well behind with 5 and respectively 3 communes within this category. Also based on MoT data, the number of counties with more than 90% communes with 0 lodgings decreased at 3: Ialomita, Teleorman (in Macro-region 3) and Olt (Macro-region 4). The same 3 counties also present only communes whit just one lodging.

The comments of Pop et al. (2019) regarding the 2008 ranking remain the same. Also similar remains the comment that, this time based both on NIS and MoT data, the information in Annex 2 implies a certain level of correlation between the 2008 ranking and the number of communes with reported lodgings and, to some extent, a correlation between the 2008 ranking and the number of lodgings.

In Annex 3 the MoT information presented in square brackets depicts a similar situation with the one discussed by Pop et al. (2019). Macro-region 1 remains on the leading position with the highest number of communes with lodgings, while Macro-region 3 remains on the last position. It is worth noting that Macro-region 3 is the only one with a decrease in the number of communes with lodgings in 2010 when MoT data are considered in comparison with NIS data. When the growth rate is taken into consideration, Macro-region 4 remains on the top position, while for Macro-region 3 a change appears which place it on the second position since, based on MoT data, Ilfov county does not registered a negative rate. Both Macro-region 1 and 2 exhibit lower than the national level growth rates, which is normal since their growth base is larger than in the case if the two other macro-regions.

An regional level, the MoT data present a similar position with NIS data, as pointed out by Pop et al. (2019). Center region remains on the highest position followed by North-West region, while South-West region is the last. When the growth rate is taken into consideration, the situation is changed; MoT data places West region on the top position, followed by South-Muntenia and having South-West region dropped to the 3rd place (from the top position under NIS data). North-West position retains its 4th place, while the remaining regions have growth rates lower than the national level growth rate.

Based on MoT data, the situation at county level is different from the case presented by Pop et al. (2019) based on NIS data, considering the counties with at least 20 communes reporting lodgings. MoT data

indicate, for 2005, a number of 9 counties having 20 or more communes with lodgings, compared with only 4 based on NIS data. For 2019 the number of these counties grew to 28, compared with 24 based on NIS data. It is worth noting that, as of 2019, within three regions (North-West, Center, and West) all counties have more than 20 communes with lodgings.

It is important to note that the growth rate based on MoT data shows less extreme figures than the NIS data and also shows no negative growth rates. Nonetheless, in the case of two counties (Teleorman from South-Muntenia region and Olt from South-West region), the growth rate could not be calculated since MoT database has no data for the rural regions in 2005 for these two counties.

Crossing the information regarding the 2008 rank from Annex 2 with the MoT data, similar with the observation of Pop et al. (2019), no pattern could be established between the two series of data for the 41 counties. The calculation of the (Pearson) correlation coefficient shows a weak negative and non-significant relation (-0.236; p-value = 0.138), compared with the almost nonexistent relation when NIS data are considered (correlation of -0.075; p-value = 0.635). While 2008 ranking might have been established using the existing accommodations at commune level (Pop et al.2019), it seems it has no important role to play in the subsequent development of rural lodgings.

Annex 4 presents all the 2,861 communes in a data panel split into 4 clusters: 0 lodging communes; 1 lodging communes, 2-19 lodging communes and at least 20 lodging communes. MoT data, similar with NIS data commented by Pop et al. (2019), do not reveal a clear pattern among 2008 ranking, the number of tourist attractions and lodgings. Also, under MoT data, the number of communes with 2-19 lodgings remains the dominant one within all four clusters.

The 0 lodging commune cluster shows a high concentration of communes within 1 and 2 point ranking (58.26%). This cluster also gather 17 of the 24 communes not located on national and/or county roads. The data in this cluster seem to indicate the need for tourist attractions and accessibility in order to trigger the development of lodging facilities. The following cluster, communes with 1 lodging, seems to confirm the first cluster suggestion: the communes with 1 and 2 point ranking decrease (representing 38.26%), while the communes with 3 and 4 point ranking increase (42.17%). Also, the number of communes with low accessibility

is only of three. However, the same cluster shows that, starting with 5 point ranking, the number of communes with 1 lodging decreases inspite of the number of attractions and higher ranking, therefore a possible higher tourist potential. The third cluster, communes with 2-19 lodging, show a similar situation with the second cluster, with the only exception that the concentration of communes appears mostly around 4 point ranking (29.29%) and an almost equal percentage around 5 and 6 point ranking (30.21%). Nevertheless, from 7 point ranking on, the number of communes with lodgings decreases regardless of tourist attractions. The third cluster also register three communes with low accessibility. Furthermore, it is worth noting that both the second and the third cluster shows communes with no identified tourist potential that developed lodgings and in two cases this is combined also with low accessibility (within the second cluster). Though these cases can be considered exceptions, they further weaken the modest linear relation that emerged. Only the fourth cluster is showing a clear relation between the lodgings, 2008 ranking and tourist attractions. Nevertheless, this relation is weak since only 37 communes (1.29% of total) are included in this last cluster. The exception of one commune with low accessibility within this cluster is interesting to note since it suggests that if attractive enough, the low accessibility of a destination seems to be ignored by tourists.

Annex 5 presents the same structure of data for the 948 communes which received a ranking in 2012. The situation in annex 5 is similar with that presented in Annex 4, based in MoT data. Though Annex 5 shows fewer exceptions and the number of communes with 0 lodgings represents only about 34% compared with about 59% of the total communes in Annex 4. Nevertheless, the data in Annex 5 are intriguing mainly for the first and second cluster, showing communes considered to have high and very high tourist potential but with no lodgings or with just one registered lodging. Also unusual is the presence within Annex 5 of 9 communes with low accessibility, of which 4 are within the 0 lodging cluster. However this situation raises the question on which base was 2012 ranking calculated as highlighted by Pop et al. (2019). Nonetheless, the exception represented by the 5 communes with low accessibility but with high 2012 rankings and with lodgings seems to suggest the idea formulated at the end of the previous paragraph: the low accessibility seems of low

importance if a (rural) tourist destination is considered attractive. These mentioned 5 communes are: C.A.Rosetti, Maliuc and Sfantu Gheorghe (Tulcea county; in Danube Delta, therefore with a poor road network), Avram Iancu (Alba county) and Comandau (Covasna county).

Research results

Correlation and multiple regression results

The descriptive statistics in Annex 6 contains similar data with those presented by Pop et al. (2019) and includes two new data series: MoT lodgings and roads. For the variables rank 2008, lodgings (NIS), monuments, protected-areas, extra-resources, and rank 2012, the data are unchanged and therefore the comments of Pop et al. (2019) unaltered.

The new data show that under MoT database the number of lodgings is higher, presenting higher average values and higher maximum values for all three commune clusters (all the communes, the communes with no 2012 rank and the 948 communes with 2012 rank). For the last two commune cluster the MoT data show higher figures within the third quartile compared to NIS data.

The data regarding the roads (quantifying the level of accessibility via the national and county road networks) show almost identical data for the first two commune clusters, indicating that either the communes are located at least on a secondary national road or at a junction of county roads. For the 948 communes ranked in 2012, therefore considered to have a higher tourist potential, the accessibility is higher (the average and the data for the first quartile), but not to a significant level compared to the first two commune clusters.

The correlation data in Annex 7 present weak to very weak (but in most cases significant) relations among variables for all three groups of communes, with the exception of the moderate relation between 2008 rank and 2012 rank for the 948 communes considered to have a higher tourist potential. For most cases the data are similar to those discussed by Pop et al. (2019). Nonetheless, the introduction of two new variables, MoT lodgings and roads, generated several differences: the strong relation between MoT lodgings and NIS lodgings within all three groups

of communes, which is normal; this situation generates the a similar pattern of relations for MoT lodgings with NIS lodgings; the absence of any relation between roads and rank 2008 and respectively between roads and extra-resources also within all the three clusters; the absence of any relation between roads and lodgings (either NIS or MoT), and between roads and protected-areas, both occurring in the case of the 948 communes ranked in 2012. It is worth to note the very weak, though significant, relation between roads and lodgings (either NIS or MoT) in the case of all communes, while in the case 1,913 communes with no ranking in 2012 this relation becomes weak and remains significant.

The stepwise multiple regression results are presented in Annex 8 for the three communes group (all communes, the 1,913 communes without 2012 ranking and 948 communes ranked in 2012). Through the formulated hypotheses there was an expectation of a higher influence exerted by the accessibility feature quantified through the variable roads. Nonetheless, the majority of the results (see Table 1 for comparative purposes) are only slightly different from those obtain by Pop et al. (2019) when the variable road was not yet introduced. The new variable roads seems to have a negligible to non-existent influence on the dependent variable rank 2008, though the influence is more visible in the case of dependent variable rank 2012. In the case of road influence on lodgings (both NIS and MoT) it can be considered low and significant in the case if the first two commune groups, while becoming very low and with a significance level lower than 95% in the case of third group of 948 communes, when rank 2012 is not taken into consideration. Road influence on lodgings (NIS and MoT) become irrelevant when rank 2012 is introduced as independent variable suggesting and indirect influence.

PLS-SEM results

Though PLS-SEM allows for more complex relations among the investigated variables, the results for the investigated hypotheses din not yield significantly stronger bonds among variables.

The following Figure 1 and Figure 1a present the results for all the 2,861 communes for both NIS lodgings (Figure 1) and MoT lodgings (Figure 1a). These results are also presented for comparative purposes in Table 1. The results are in line with the multiple regression findings.

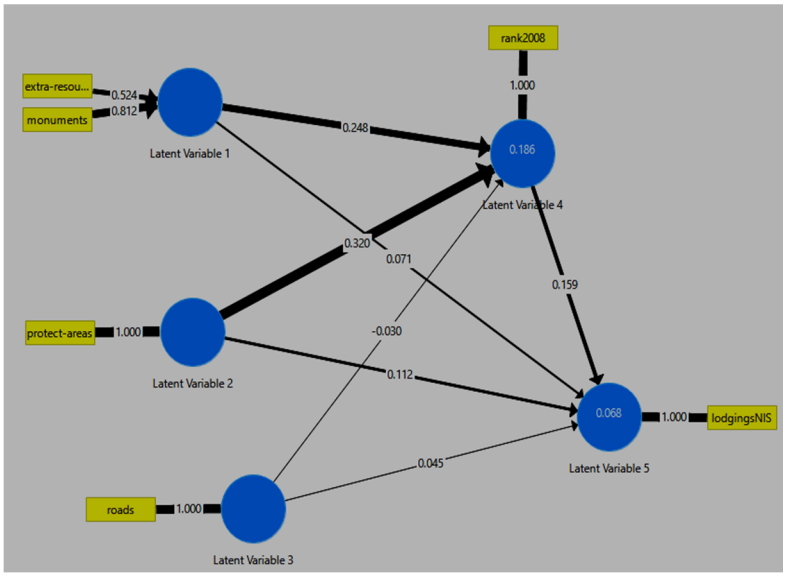

Figure 1. PLS-SEM results for all 2,861 communes with lodgings registered based on NIS data
Source: authors' calculations

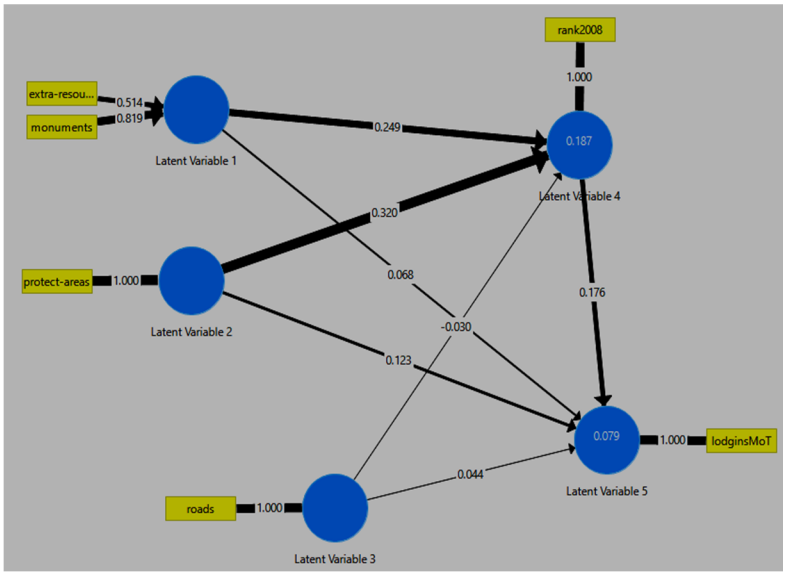

Figure 1a. PLS-SEM results for all 2,861 communes with lodgings registered based on MoT data
Source: authors' calculations

Figure 2 and Figure 2a present the results for the 1,913 communes without 2012 rank for both NIS lodgings (Figure 2) and MoT lodgings (Figure 2a). These results are also in line with the multiple regression findings and are included in Table 1 for easier comparison.

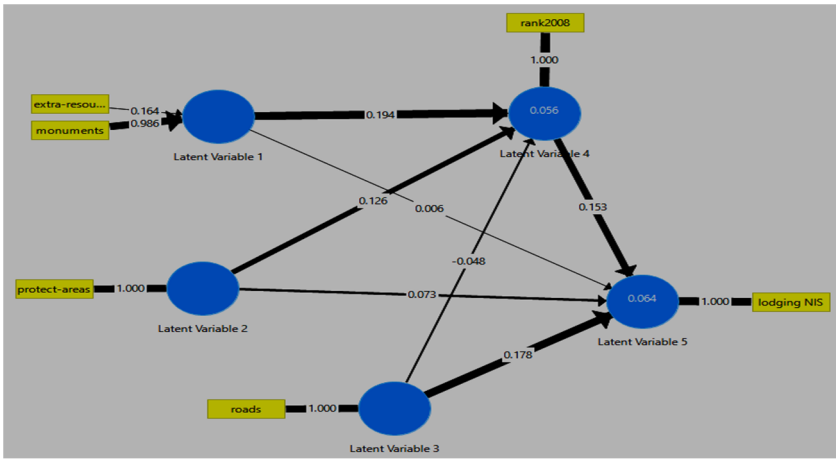

Figure 2. PLS-SEM results for 1,913 communes (not ranked in 2012) with lodgings registered based on NIS data
Source: authors' calculations

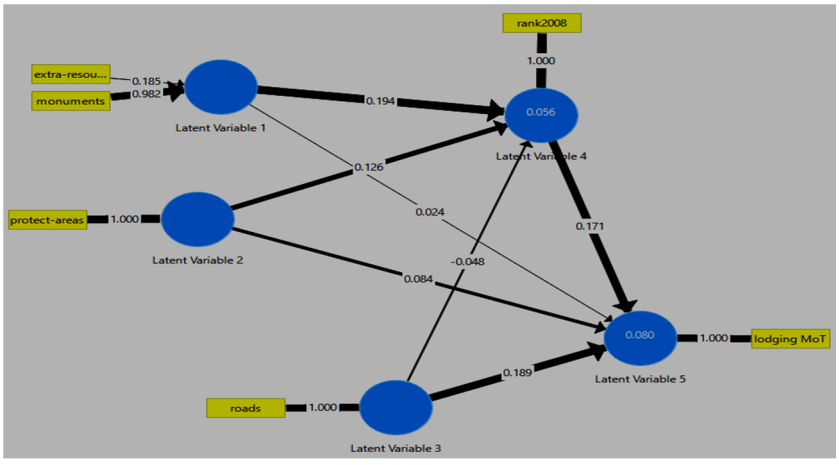

Figure 2a. PLS-SEM results for 1,913 communes (not ranked in 2012) with lodgings registered based on MoT data
Source: authors' calculations

Figure 3 and 3a presents the case of the 948 communes, ranked in 2012, taking into account the NIS lodgings and respectively MoT lodgings. For these two situations rank 2012 was not included as independent variable. Similar to the previous cases, these results also confirm the multiple regression results and are included in Table 1 for easier comparison.

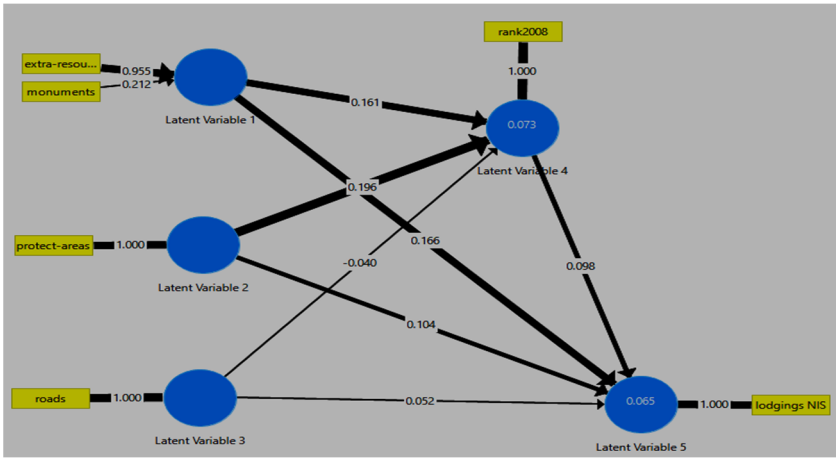

Figure 3. PLS-SEM results for 948 communes with lodgings registered based on NIS data (rank2012 not included)
Source: authors' calculations

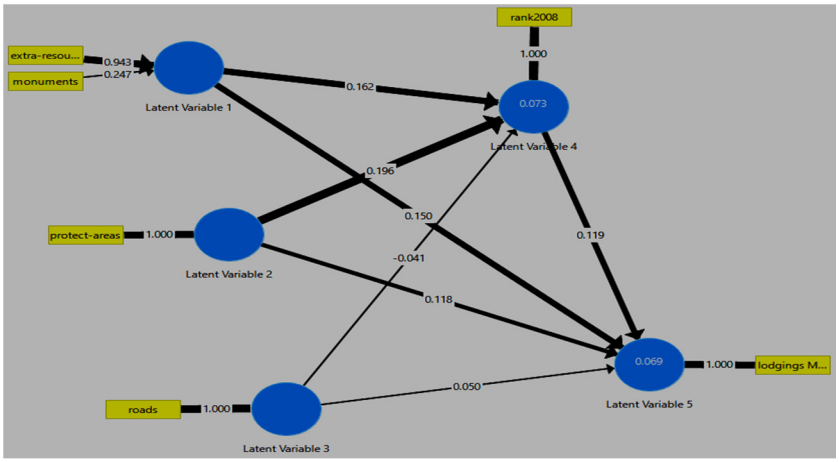

Figure 3a. PLS-SEM results for 948 communes with lodgings registered based on MoT data (rank2012 not included)
Source: authors' calculations

In Figure 4 and 4a for the 948 communes with higher tourist potential, rank 2012 was included as independent variable in both cases of NIS lodgings and respectively MoT lodgings. As in the previous cases, the results also confirm the multiple regression results and are included in Table 1 for an easier comparison.

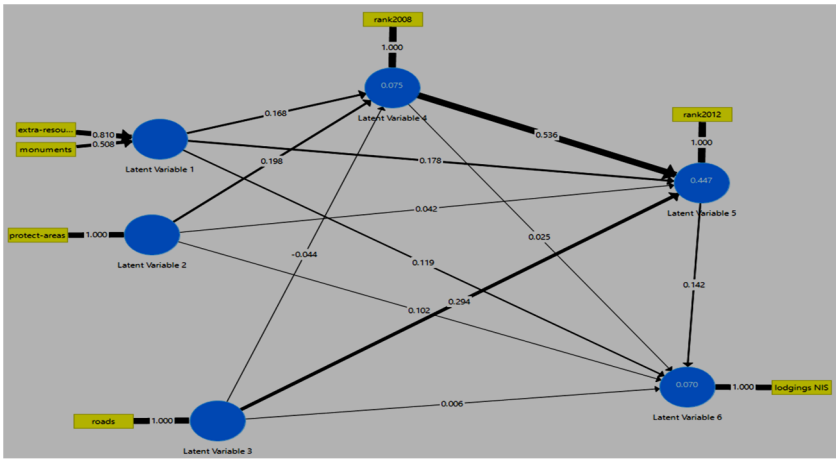

Figure 4. PLS-SEM results for 948 communes with lodgings registered based on NIS data (rank2012 included)
Source: authors' calculations

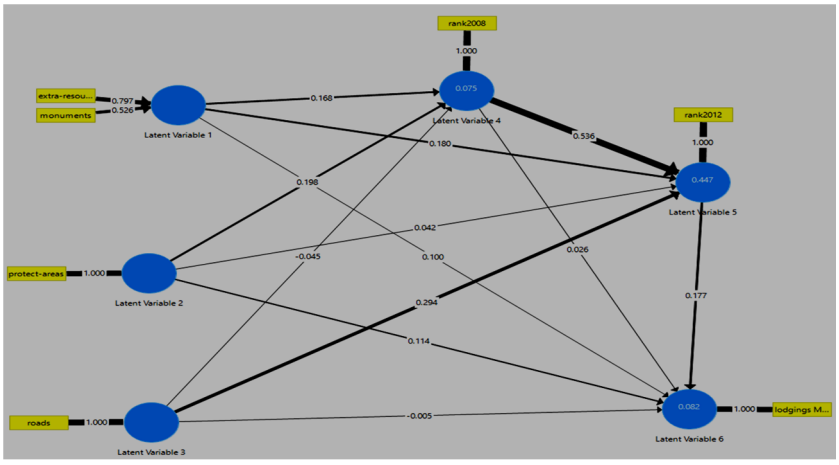

Figure 4a. PLS-SEM results for 948 communes with lodgings registered based on MoT data (rank2012 included)
Source: authors' calculations

Discussions

All the formulated hypotheses for this study are confirmed with a high level of confidence, as Table 1 shows. For and easier comparison, Table 1 contains also the hypotheses formulated by Pop et al. (2019). The most important finding is, based on the data used for this study, that the accessibility (quantified with the variable roads) adds only insignificant explanatory power either when the 2008 rankings are taken into consideration or when lodgings are studied (in the case of all communes and the 948 communes ranked in 2012).

It is worth noting that the results for NIS lodgings and MoT lodgings are close, with a slightly higher explanatory power in the case of MoT lodgings since the MoT database presents a higher number of lodgings.

Table 1. Hypotheses confirmation/information

Hypotheses formulated by Pop et al.(2019)			**Hypotheses formulated by Pop et al.(2019)**		
Hypotheses	Multiple regression results	PLS-SEM results	Hypotheses	Multiple regression results	PLS-SEM results
H1 (for all communes): 2008 rank is influenced by the tourist resources	Confirmed. R^2 = 18.8%; p-value < 0.001	Confirmed R^2 = 18.5%; p-value = 0.0000	**H1 (for all communes): 2008 rank is influenced by the tourist resources and roads (accessibility)**	Confirmed. R^2 = 19.0%; p-value < 0.001	Confirmed R^2 = 18.6%; p-value = 0.0000
H1.1 (for the 1,913 communes): 2008 rank is influenced by the tourist resources	Confirmed. R^2 = 5.4%; p-value < 0.001	Confirmed R^2 = 5.4%; p-value = 0.0000	H1.1 (for the 1,913 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)	Confirmed. R^2 = 5.7%; p-value < 0.001	Confirmed R^2 = 5.6%; p-value = 0.0000
H1.2 (for the 948 communes): 2008 rank is influenced by the tourist resources	Confirmed. R^2 = 7.3%; p-value < 0.001	Confirmed R^2 = 7.1%; p-value = 0.0000	H1.2 (for the 948 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)	Confirmed. R^2 = 7.5%; p-value < 0.001	Confirmed R^2 = 7.3%; p-value = 0.0000
H2 (for the 948 communes): 2012 rank is influenced by the tourist resources	Confirmed. R^2 = 11.5%; p-value < 0.001	Not investigated.	**H2 (for the 948 communes): 2012 rank is influenced by the tourist resources and roads (accessibility)**	Confirmed. R^2 = 18.5%; p-value < 0.001	Not investigated.

Hypotheses formulated by Pop et al.(2019)			**Hypotheses formulated by Pop et al.(2019)**		
H2a (for the 948 communes): 2012 rank is influenced by the tourist resources and the 2008 rank	Confirmed. R^2 = 36.8%; p-value < 0.001	Confirmed R^2 = 36.1%; p-value = 0.0000	H2.1 (for the 948 communes): 2012 rank is influenced by the tourist resources, the 2008 rank, and roads (accessibility)	Confirmed. R^2 = 45.1%; p-value < 0.001	Confirmed R^2 = 44.7%; p-value = 0.0000
H3 (for all communes): lodgings are influenced by the tourist resources and the 2008 rank	Confirmed. R^2 = 7.3%; p-value < 0.001	Confirmed R^2 = 6.5%; p-value = 0.0000	**H3 (for all communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)**	Confirmed. R^2 = 7.6%; p-value < 0.001	Confirmed R^2 = 6.8%; p-value = 0.0000
-	-	-	***H3bis (for all communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)***	Confirmed. R^2 = 8.6%; p-value < 0.001	Confirmed R^2 = 7.9%; p-value = 0.0000
H3.1 (for the 1,913 communes): lodgings are influenced by the tourist resources and the 2008 rank	Confirmed. R^2 = 3.3%; p-value < 0.001	Confirmed R^2 = 3.2%; p-value = 0.0000	H3.1 (for the 1,913 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)	Confirmed. R^2 = 6.5%; p-value < 0.001	Confirmed R^2 = 6.4%; p-value = 0.0000
-	-	-	*H3.1bis (for the 1,913 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)*	Confirmed. R^2 = 8.1%; p-value < 0.001	Confirmed R^2 = 8.0%; p-value = 0.0000
H3.2 (for the 948 communes): lodgings are influenced by the tourist resources and the 2008 rank	Confirmed. R^2 = 6.4%; p-value < 0.001	Confirmed R^2 = 6.2%; p-value = 0.0000	H3.2 (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)	Confirmed. R^2 = 6.7%; p-value < 0.001	Confirmed R^2 = 6.5%; p-value = 0.0000
-	-	-	*H3.2bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)*	Confirmed. R^2 = 7.1%; p-value < 0.001	Confirmed R^2 = 6.9%; p-value = 0.0000

Hypotheses formulated by Pop et al.(2019)			**Hypotheses formulated by Pop et al.(2019)**		
H3.2a (for the 948 communes): lodgings are influenced by the tourist resources and the 2008 rank and the 2012 rank	Confirmed. R^2 = 8.0%; p-value < 0.001	Confirmed R^2 = 7.0%; p-value = 0.0000	H3.2a (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)	Confirmed. R^2 = 8.0%; p-value < 0.001	Confirmed R^2 = 7.0%; p-value = 0.0000
-	-	-	H3.2a-bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)	Confirmed. R^2 = 9.0%; p-value < 0.001	Confirmed R^2 = 8.2%; p-value = 0.0000

Source: Pop et al. (2019) for the first three columns and authors' calculations

Differences appear in the case of 2012 ranking where R^2 increases by 8.3% under multiple regression and by 8.6% under PLS-SEM. An interesting result appears in the cases of the 1,913 communes not ranked in 2012, therefore considered with a lower tourist potential. For NIS lodgings the explanatory power of accessibility is almost double when the accessibility is considered, compared with the previous findings of Pop et al. (2019). Though, R^2 remains lower than 10%. Nonetheless, this result might suggest that lodging development is up to an extent influenced by the accessibility when the tourist attentions are less numerous and tourism potential is judged as low. This suggestion is somewhat confirmed by the results (presented above) indicating the lack of influence of accessibility when studying the lodgings (both NIS and MoT) for the 948 communes ranked in 2012 (considered to have a higher tourist potential). The presence of tourist attractions seeming to be appealing for tourists (and lodging providers) while the accessibility becomes less relevant.

Similar to the findings of Pop et al. (2019), the 2008 and 2012 ranks were established based on the existing tourist attractions. The 2012 rank is strongly influenced by 2008 ranks and, under the present study, by accessibility. Though, the influence of both ranks on lodgings (both under NIS and MoT data) remains weak to very weak hence suggesting the need to introduce new factors in order to explain the lodging development in rural areas.

Conclusions

The introduction of two new series of data in the study (the lodgings registered according to MoT database and the accessibility quantified via variable roads) show a slightly different situation than the circumstances presented by Pop et al. (2019).

Based on MoT database, the number of communes with no lodgings decreased, representing about 59% of the total (compared with the about 65% using NIS data). The most important increase, using MoT data, is in the number of communes whit 2-19 lodgings representing about 17% (compared with 12% under NIS data). Though, the number of communes with at least 20 lodgings remains a negligible 37 communes (compared with 20 communes) under NIS data. The conditions are replicated in the case of the 948 communes ranked in 2012 also. Using MoT data, the number of communes with 0 lodgings, within this category, decreased to 34% (from 39% under NIS data), while the number of communes with 2-19 lodgings increased to about 33% (compared with 26% under NIS data).

The accessibility of the communes can be considered high since only 24 of these communes are not located on the national and county road networks. However, this conclusion cannot be extended to all the villages under the 2,861 communes administration. Being over 12,000 such villages the investigation would have been too difficult.

The accessibility seems to play a role (though the relation is weak, but significant) in developing lodgings mainly for the case of the 1,913 communes not ranked in 2012, therefore considered to have a lower tourist potential. While a higher tourist potential seems to make the direct influence of accessibility rather irrelevant for developing lodgings in the case of the 948 communes ranked in 2012. However, the influence of accessibility in the case of these 948 communes is rather indirect, via the 2012 rank. These findings do not contradict however the findings of Pop et al.(2019) indicating a low to very low awareness at commune level regarding the presence of natural and anthropic tourist attractions since almost all the investigated relations are weak, though significant.

The findings above lead to the same conclusion formulated by Pop et al. (2019): the community-based tourism, as suggested by (Figueiredo et al., 2013) should be considered a path to be followed, rising the level of community awareness regarding the existing resources and how they should be used under a sustainable development strategy.

The limitations of this study come from the way the accessibility was quantified and from not taking into consideration the intangible heritage of the communes. Further research points toward including new factors in order to explain the lodging development in rural areas, toward including into the study only the communes with lodgings and toward a potential segmentation of tourist offer as suggested by Coros (2020) and Nistoreanu (2018).

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Annex 1. The situation of communes with tourist potential

County/region/macro-region	Number of communes	Number of communes on national and county roads	Number of communes with protected areas	Number of communes with historic monuments	Number of communes with vineyards/wine centres	Number of communes with mineral waters/balneary potential	Number of communes with (natural or cultural) WHS	Number of communes with status of resort	Number of communes with no identified tourist potential	Number of communes with no 2008 ranking (of which resorts)	Number of communes with no 2012 ranking	Number of communes with no 2008 ranking and 2012 ranking
Bihor	91	91	71	74	10	7	0	3	5	4 (3)	65	1
Bistrita-Nasaud	58	57	40	47	24	1	0	2	4	0	21	0
Cluj	75	75	55	72	20	1	0	2	0	1 (1)	48	0
Maramures	63	63	51	53	7	7	10	5	1	1 (1)	9	0
Satu-Mare	59	58	34	52	21	9	0	0	4	1	49	1
Salaj	57	57	23	50	19	4	0	1	2	0	26	0
North-West	**403**	**401**	**274**	**348**	**101**	**29**	**10**	**13**	**16**	**7 (5)**	**218**	**2**
Alba	67	65	56	59	35	0	2	2	1	2 (2)	22	0
Brasov	48	47	41	45	0	6	4	3	0	2 (2)	15	0
Covasna	40	39	36	38	0	8	0	1	0	1 (1)	13	0
Harghita	58	58	51	52	0	11	1	2	1	2 (2)	22	1
Mures	91	90	74	79	33	5	1	1	0	0	32	0
Sibiu	53	53	46	50	23	1	2	2	0	1 (1)	18	0
Center	**357**	**352**	**304**	**323**	**91**	**31**	**10**	**11**	**2**	**8 (8)**	**122**	**1**
Macro-1	***760***	***753***	***578***	***671***	***192***	***60***	***20***	***24***	***18***	***15 (13)***	***340***	***3***
Bacau	85	83	45	69	25	1	0	0	7	0	71	0
Botosani	71	69	43	61	4	0	0	0	7	0	63	0
Iasi	93	92	71	83	56	2	0	0	2	0	79	0
Neamt	78	78	55	62	1	5	0	2	6	2 (2)	35	0
Suceava	98	98	71	65	0	9	7	6	5	1	57	1
Vaslui	81	80	44	61	67	1	0	0	2	0	71	0
North-East	**506**	**500**	**329**	**401**	**153**	**18**	**7**	**8**	**29**	**3 (2)**	**376**	**1**
Braila	40	40	31	21	14	3	0	1	5	1 (1)	26	1
Buzau	82	79	52	68	18	3	0	1	5	1 (1)	66	0
Constanta	58	57	46	52	30	2	4	1	2	1 (1)	33	0
Galati	61	61	34	39	58	0	0	0	0	1	46	1
Tulcea	46	43	45	34	22	0	14	0	0	0	24	0
Vrancea	68	68	45	54	28	2	0	1	5	0	49	0
South-East	**355**	**348**	**253**	**268**	**170**	**10**	**18**	**4**	**17**	**4 (3)**	**244**	**2**

County/region/macro-region	Number of communes	Number of communes on national and county roads	Number of communes with protected areas	Number of communes with historic monuments	Number of communes with vineyards/wine centres	Number of communes with mineral waters/balneary potential	Number of communes with (natural or cultural) WHS	Number of communes with status of resort	Number of communes with no identified tourist potential	Number of communes with no 2008 ranking (of which resorts)	Number of communes with no 2012 ranking	Number of communes with no 2008 ranking and 2012 ranking
Macro-2	***861***	***848***	***582***	***669***	***323***	***28***	***25***	***12***	***46***	***7 (5)***	***620***	***3***
Arges	95	95	52	86	18	3	0	3	3	1 (1)	45	0
Calarasi	50	50	25	37	14	0	0	0	5	0	49	0
Dambovita	82	81	21	77	5	2	0	1	5	0	63	0
Giurgiu	51	51	29	49	9	0	0	0	1	0	47	0
Ialomita	59	59	48	40	1	0	0	0	9	1	55	1
Prahova	90	90	30	74	17	2	0	1	12	1 (1)	72	0
Teleorman	92	92	57	76	9	0	0	0	6	0	90	0
South-Muntenia	**519**	**518**	**262**	**439**	**73**	**7**	**0**	**5**	**41**	**3 (2)**	**421**	**1**
Ilfov	32	32	10	31	0	0	0	1	1	1 (1)	27	0
Macro-3	***551***	***550***	***272***	***470***	***73***	***7***	***0***	***6***	***42***	***4 (3)***	***448***	***1***
Arad	68	68	55	45	11	3	0	1	3	1 (1)	54	0
Caras-Severin	69	69	53	58	6	0	17	3	6	2 (2)	38	0
Hunedoara	55	55	46	45	0	4	4	1	2	1 (1)	17	0
Timis	89	89	56	63	4	6	0	1	12	5 (1)	80	5
West	**281**	**281**	**210**	**211**	**21**	**13**	**21**	**6**	**23**	**9 (5)**	**189**	**5**
Dolj	104	104	60	99	64	0	0	0	1	0	93	0
Gorj	61	61	34	60	9	3	1	3	0	1 (1)	31	0
Mehedinti	61	59	45	56	39	4	4	0	0	0	44	0
Olt	104	104	63	90	13	1	0	0	8	1	99	1
Valcea	78	77	36	76	25	4	7	1	1	1 (1)	49	0
South-West	**408**	**405**	**238**	**381**	**150**	**12**	**12**	**4**	**10**	**3 (2)**	**316**	**1**
Macro-4	***689***	***686***	***448***	***592***	***171***	***25***	***33***	***10***	***33***	***12 (7)***	***505***	***6***
National level	2,861	2,837	1,880	2,343	759	120	78	52	139	38 (28)	1,913	13*

Note *: of these 13 communes, 3 have the status of resort of local interest: Chiscani (Lacul Sarat) – Braila county; Voslabeni (Izvorul Muresului) – Harghita county, and Ortisoara (Baile Calacea) – Timis county.

Sources: authors' calculations based on NIS data and collected data regarding the roads; this Annex 1 is similar with Annex 1 from Pop et al.(2019) for the columnes 1 and 3 to 12

Annex 2. The situation of communes 2008 rank and average number of lodgings for 2005-2019 providend by NIS and MoT; MoT data and comments in brakets [x]

County/region/ macro-region	Number of communes	Minimum/maximum 2008 rank	Average 2008 rank	The most frequent 2008 rank (and percentage)	Communes with 0 lodgings	Communes with 1 lodging	Communes with 2-19 lodgings	Communes with 20 lodgings or more	Comments
Bihor	91	0/7	3.20	2 (35.16%)	55 [42]	22 [31]	13 [17]	1 [1]	Sanmartin (Baile Felix & 1 Mai; resorts): 66 [139] lodgings
Bistrita-Nasaud	58	1/8	4.47	4 (25.86%)	32 [28]	21 [20]	5 [10]	0 [0]	
Cluj	75	1/6	3.52	4 (40.00%)	31 [24]	23 [24]	21 [26]	0 [1]	[Sancraiu: 33 lodgings]
Maramures	63	1/10	4.90	4 (25.40%)	28 [16]	15 [17]	20 [28]	0 [2]	[Botiza (resort): 20 lodgings; Ocna Sugatag (resort): 38 lodgings]
Satu-Mare	59	0/6	2.49	2 (37.29%)	41 [39]	16 [17]	2 [3]	0 [0]	
Salaj	57	1/7	3.42	4 (31.58%)	33 [29]	19 [22]	4 [6]	1 [0]	Boghis (resort): 30 lodgings
North-West	**403**	**0/10**	**3.67**	**4 (25.56%)**	**220 [178]**	**116 [131]**	**65 [90]**	**2 [4]**	
Alba	67	1/10	4.72	4 (22.39%)	31 [30]	23 [15]	13 [20]	0 [2]	[Arieseni (resort): 35 lodgings; Rametea: 21 lodgings]
Brasov	48	2/8	4.25	4 (43.75%)	13 [11]	16 [15]	17 [19]	2 [3]	Bran (resort): 102 [146] lodgings; Moieciu (resort): 111 [153]; [Fundata: 29 lodgings]
Covasna	40	1/8	4.20	4 (30.00%)	18 [5]	10 [16]	12 [19]	0 [0]	
Harghita	58	1/8	4.00	4 (32.76%)	10 [6]	22 [20]	23 [28]	3 [4]	Praid (resort): 49 [76] lodgings; Voslabeni (Izvorul Muresului, resort): 23 [24] lodgings; Zetea: 30 [52] lodgings [Lupeni: 21 lodgings]
Mures	91	1/8	3.48	4 (48.35%)	50 [47]	29 [27]	12 [17]	0 [0]	
Sibiu	53	2/9	4.57	4 (39.62%)	21 [21]	18 [14]	14 [16]	0 [2]	[Gura Raului: 22 lodgings; Rasinari: 20 lodgings]
Center	**357**	**1/10**	**4.20**	**4 (36.97%)**	**143 [120]**	**118 [107]**	**91 [119]**	**5 [11]**	
Macro-1	***760***	***0/10***	***3.94***	***4 (30.97%)***	***363 [298]***	***234 [238]***	***156 [209]***	***7 [15]***	
Bacau	85	1/6	2.08	2 (54.12%)	60 [55]	19 [16]	6 [14]	0 [0]	
Botosani	71	1/6	2.42	2 (56.34%)	69 [60]	1 [10]	1 [1]	0 [0]	
Iasi	93	1/6	2.23	2 (37.63%)	69 [65]	16 [19]	8 [9]	0 [0]	

County/region/ macro-region	Number of communes	Minimum/maximum 2008 rank	Average 2008 rank	The most frequent 2008 rank(and percentage)	Communes with 0 lodgings	Communes with 1 lodging	Communes with 2-19 lodgings	Comuneswith 20 lodgings or more	Comments
Neamt	78	1/9	3.77	4 (30.77%)	39 [38]	19 [20]	18 [17]	2 [3]	Alexandru cel Bun: 20 [24] lodgings; Ceahlau (Durau, resort): 41 [51] lodgings [Agapia: 20 lodgings]
Suceava	98	0/9	3.48	2 (28.57%)	43 [32]	28 [38]	25 [25]	2 [3]	Sucevita (resort): 26 [40] lodgings; Vama: 20 [26] lodgings [Manastirea Humorului: 21 lodgings]
Vaslui	81	1/6	2.25	2 (48.15%)	70 [71]	10 [8]	1 [2]	0 [0]	
North-East	**506**	**0/9**	**2.71**	**2 (41.70%)**	**350 [321]**	**93 [111]**	**59 [68]**	**4 [6]**	
Braila	40	1/6	2.08	1 (52.50%)	33 [32]	5 [6]	2 [2]	0 [0]	
Buzau	82	1/7	2.72	1 (34.15%)	54 [54]	16 [16]	11 [11]	1 [1]	Merei (Sarata Monteoru, resort): 22 [25] lodgings
Constanta	58	1/8	3.36	3 (22.41%)	43 [40]	11 [13]	3 [3]	1 [2]	Costinesti (resort): 173 [224] lodgings [Limanu: 70 logdings]
Galati	61	0/7	2.79	3 (31.15%)	54 [51]	7 [9]	0 [1]	0 [0]	
Tulcea	46	1/8	3.87	4 (28.26%)	27 [23]	9 [8]	7 [11]	3 [4]	Somova: 23 lodgings; Jurilovca: 24 [22] lodgings; Murighiol: 39 [64] lodgings [Crisan: 32 lodgings; Sf.Gheorghe: 27 lodgings]
Vrancea	68	1/6	2.90	2 (38.24%)	48 [34]	15 [29]	4 [4]	1 [1]	Tulnici: 20 [30] lodgings
South-East	**355**	**0/8**	**2.95**	**2 (23.65%)**	**259 [234]**	**63 [81]**	**27 [32]**	**6 [8]**	
Macro-2	***861***	***0/9***	***2.83***	***2 (34.26%)***	***609 [555]***	***156 [192]***	***86 [100]***	***10 [14]***	
Arges	95	1/6	3.56	4 (36.84%)	47 [49]	26 [21]	21 [22]	1 [3]	Rucar: 25 [34] lodgings [Arefu: 27 lodgings; Corbeni: 23 lodgings]
Calarasi	50	1/5	1.60	1 (70.00%)	44 [37]	5 [12]	1 [1]	0 [0]	
Dambovita	82	1/7	3.02	2 (35.37%)	59 [54]	19 [22]	4 [5]	0 [1]	[Moroeni (resort): 22 lodgings]
Giurgiu	51	1/6	2.18	1 (37.25%)	43 [40]	8 [8]	0 [3]	0 [0]	
Ialomita	59	0/5	1.92	1 (50.85%)	55 [54]	4 [5]	0 [0]	0 [0]	
Prahova	90	1/6	2.88	2 (40.00%)	64 [54]	18 [24]	7 [11]	1 [1]	Maneciu (Cheia, resort): 20 [36] lodgings
Teleorman	92	1/5	1.88	1 (42.39%)	84 [86]	8 [6]	0 [0]	0 [0]	

County/region/ macro-region	Number of communes	Minimum/maximum 2008 rank	Average 2008 rank	The most frequent 2008 rank(and percentage)	Communes with 0 lodgings	Communes with 1 lodging	Communes with 2-19 lodgings	Comuneswith 20 lodgings or more	Comments
South-Muntenia	**519**	**0/7**	**2.43**	**2 (27.75%)**	**396 [374]**	**88 [98]**	**33 [42]**	**2 [5]**	
Ilfov	32	1/7	2.63	2 (43.75%)	20 [17]	9 [8]	3 [7]	0 [0]	
Macro-3	***551***	***0/7***	***2.53***	***2 (28.68%)***	***416 [391]***	***97 [106]***	***36 [49]***	***2 [5]***	
Arad	68	1/7	3.13	4 (25.00%)	39 [39]	20 [20]	9 [8]	0 [1]	[Moneasa (resort): 20 lodgings]
Caras-Severin	69	2/8	3.75	2 (27.54%)	35 [34]	22 [23]	12 [12]	0 [0]	
Hunedoara	55	2/10	4.58	4 (36.36%)	21 [20]	25 [19]	9 [16]	0 [0]	
Timis	89	0/6	2.21	2 (37.08%)	61 [52]	21 [25]	7 [12]	0 [0]	
West	**281**	**0/10**	**3.42**	**2 (26.33%)**	**156 [145]**	**88 [87]**	**37 [48]**	**0 [1]**	
Dolj	104	1/6	2.11	2 (49.04%)	91 [85]	11 [13]	2 [6]	0 [0]	
Gorj	61	1/9	3.59	2 (42.62%)	39 [34]	13 [16]	9 [10]	0 [1]	[Baia de Fier (resort): 25 lodgings]
Mehedinti	61	1/9	2.95	2 (49.18%)	45 [40]	12 [14]	4 [7]	0 [0]	
Olt	104	0/7	2.05	2 (45.19%)	96 [97]	8 [7]	0 [0]	0 [0]	
Valcea	78	1/7	2.82	2 (52.56%)	54 [49]	18 [17]	5 [11]	1 [1]	Voineasa (resort): 34 [41] lodgings
South-West	**408**	**0/9**	**2.70**	**2 (47.79%)**	**325 [305]**	**62 [67]**	**20 [34]**	**1 [2]**	
Macro-4	***689***	***0/10***	***3.06***	***2 (39.04%)***	***481 [450]***	***150 [154]***	***57 [82]***	***1 [3]***	
National level	2,861	0/10	3.09	2 (30.93%)	1,869 [1,694]	637 [690]	335 [440]	20 [37]	

Sources: authors' calculations based on NIS and MoT data; this Annex 2 is similar with Annex 2 from Pop et al. (2019) for columns 1 to 5; information regaring MoT data was aded in columns 6 to 10.

Annex 3. The evolution of communes with registered accommodation facilities between 2005 and 2019 according to NIS and MoT; MoT data in brakets [x]

County/region/ macro-region	Number of communes	Communes with lodgings in 2005	Communes with lodgings in 2010	Communes with lodgings in 2015	Communes with lodgings in 2019	Increase/decrease in communes with lodgings (%)
Bihor	91	18 [22]	19 [21]	27 [35]	30 [43]	66.67 [95.45]
Bistrita-Nasaud	58	5 [9]	6 [12]	11 [18]	24 [30]	380.00 [233.33]
Cluj	75	27 [25]	33 [31]	32 [34]	40 [50]	48.15 [100.00]
Maramures	63	19 [34]	26 [28]	27 [34]	34 [42]	78.95 [23.53]
Satu-Mare	59	8 [6]	8 [7]	9 [11]	15 [20]	87.50 [233.33]
Salaj	57	5 [5]	10 [9]	14 [15]	20 [26]	300.00 [420.00]
North-West	**403**	**82 [101]**	**102 [108]**	**120 [147]**	**163 [211]**	**98.78 [108.91]**
Alba	67	8 [19]	18 [20]	28 [29]	32 [35]	300.00 [84.21]
Brasov	48	19 [20]	19 [21]	27 [30]	32 [35]	68.42 [75.00]
Covasna	40	11 [17]	15 [16]	21 [24]	21 [33]	90.91 [94.12]
Harghita	58	36 [39]	31 [31]	34 [38]	40 [45]	11.11 [15.38]
Mures	91	16 [20]	16 [14]	30 [32]	35 [42]	118.75 [110.00]
Sibiu	53	12 [16]	18 [21]	22 [24]	26 [31]	116.67 [93.75]
Center	**357**	**102 [131]**	**117 [123]**	**162 [177]**	**186 [221]**	**82.35 [68.70]**
Macro-1	***760***	***184 [232]***	***219 [231]***	***282 [324]***	***349 [432]***	***89.67 [86.21]***
Bacau	85	11 [16]	9 [15]	20 [24]	22 [25]	100.00 [56.25]
Botosani	71	2 [4]	2 [1]	2 [6]	2 [9]	0.00 [125.00]
Iasi	93	14 [13]	13 [14]	16 [17]	18 [26]	28.57 [100.00]
Neamt	78	17 [21]	28 [22]	29 [32]	35 [38]	105.88 [80.95]
Suceava	98	25 [31]	31 [31]	36 [44]	51 [62]	104.00 [100.00]
Vaslui	81	1 [2]	5 [7]	8 [8]	10 [7]	900.00 [250.00]
North-East	**506**	**70 [87]**	**88 [90]**	**111 [131]**	**138 [167]**	**97.14 [91.95]**
Braila	40	3 [2]	3 [3]	6 [5]	6 [7]	100.00 [250.00]
Buzau	82	14 [14]	21 [16]	22 [24]	25 [27]	78.57 [92.86]
Constanta	58	8 [8]	9 [7]	8 [14]	12 [17]	50.00 [112.50]
Galati	61	1 [3]	1 [5]	1 [5]	6 [7]	500.00 [133.33]
Tulcea	46	9 [13]	8 [16]	13 [18]	17 [20]	88.89 [53.85]
Vrancea	68	14 [19]	11 [13]	6 [14]	15 [23]	7.14 [21.05]

County/region/ macro-region	Number of communes	Communes with lodgings in 2005	Communes with lodgings in 2010	Communes with lodgings in 2015	Communes with lodgings in 2019	Increase/decrease in communes with lodgings (%)
South-East	**355**	**49 [59]**	**53 [60]**	**56 [80]**	**81 [101]**	**65.31 [71.19]**
Macro-2	***861***	***119 [146]***	***141 [150]***	***167 [211]***	***219 [268]***	***84.03 [83.56]***
Arges	95	23 [22]	28 [25]	40 [39]	45 [46]	95.65 [109.09]
Calarasi	50	2 [2]	4 [3]	4 [4]	5 [11]	150.00 [450.00]
Dambovita	82	8 [11]	16 [13]	17 [21]	21 [27]	162.50 [145.45]
Giurgiu	51	3 [4]	3 [3]	2 [8]	5 [10]	66.67 [150.00]
Ialomita	59	1 [1]	4 [2]	4 [2]	4 [4]	300.00 [300.00]
Prahova	90	13 [17]	13 [13]	16 [19]	22 [33]	69.23 [94.12]
Teleorman	92	3 [0]	1 [0]	3 [5]	5 [6]	66.67 [n/a]
South-Muntenia	**519**	**53 [57]**	**69 [59]**	**86 [98]**	**107 [137]**	**101.89 [140.35]**
Ilfov	32	10 [11]	10 [8]	7 [9]	6 [14]	-40.00 [27.27]
Macro-3	***551***	***63 [68]***	***79 [67]***	***93 [107]***	***113 [151]***	***79.37 [122.06]***
Arad	68	15 [15]	20 [10]	19 [19]	20 [24]	33.33 [60.00]
Caras-Severin	69	10 [10]	17 [17]	30 [32]	32 [34]	220.00 [240.00]
Hunedoara	55	14 [18]	14 [20]	17 [25]	29 [33]	107.14 [83.33]
Timis	89	9 [8]	12 [16]	19 [22]	23 [32]	155.56 [300.00]
West	**281**	**48 [51]**	**63 [63]**	**85 [98]**	**104 [123]**	**116.67 [141.18]**
Dolj	104	3 [9]	3 [10]	9 [12]	10 [17]	233.33 [88.89]
Gorj	61	7 [6]	9 [10]	11 [16]	22 [26]	214.29 [333.33]
Mehedinti	61	3 [8]	4 [8]	7 [10]	15 [18]	400.00 [125.00]
Olt	104	2 [0]	0 [2]	1 [3]	6 [6]	200.00 [n/a]
Valcea	78	12 [18]	13 [19]	19 [22]	24 [25]	100.00 [38.89]
South-West	**408**	**27 [41]**	**29 [49]**	**47 [63]**	**77 [92]**	**185.19 [124.39]**
Macro-4	***689***	***75 [92]***	***92 [112]***	***132 [161]***	***181 [215]***	***141.33 [133.70]***
National level	2,861	441 [538]	531 [560]	674 [803]	862 [1,066]	95.46 [98.14]

Source: based on NIS data as available via Tempo-online and MoT data. This Annex 3 is similar with the Annex 3 in Pop et al.(2019) for the data that are not in squared brackets

Annex 4. The structure of the 2,861 communes based on the average lodgings as provided by NIS and MoT [in brakets], 2008 ranking, and potential tourist attractions [note: NR = national road; CR = county road]

Communes with 0 lodgings					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	1 [1]	3 [3]	4 [4]	0 [0]	**8 [8]**
1 point	48 [46]	62 [60]	260 [249]	0 [0]	**370 [355]**
2 points	47 [42]	102 [96]	547 [492]	2 [2]	**698 [632]**
3 points	12 [13]	29 [25]	276 [249]	4 [3]	**321 [290]**
4 points	2 [2]	28 [25]	297 [261]	6 [3]	**333 [291]**
5 points	1 [1]	3 [2]	67 [59]	0 [0]	**71 [62]**
6 points	1 [1]	2 [2]	43 [35]	2 [1]	**48 [39]**
7 points	0 [0]	2 [1]	11 [10]	1 [1]	**14 [12]**
8 points	0 [0]	0 [0]	1 [0]	1 [1]	**2 [1]**
9 points	0 [0]	0 [0]	4 [4]	0 [0]	**4 [4]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**112 [106]**	**231 [214]**	**1,510 [1,363]**	**16 [11]**	**1,869 [1,694]**
Of which not on NRs and CRs	*3 [3]*	*0 [0]*	*14 [14]*	*0 [0]*	*17 [17]*
Communes with 1 lodging					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	1 [1]	0 [0]	1 [1]	0 [0]	**2 [2]**
1 point	4 [6]	6 [8]	50 [54]	0 [0]	**60 [68]**
2 points	11 [16]	13 [16]	125 [164]	1 [0]	**150 [196]**
3 points	5 [5]	7 [11]	90 [100]	1 [1]	**103 [117]**
4 points	0 [1]	3 [7]	154 [156]	8 [10]	**165 [174]**
5 points	0 [0]	2 [2]	68 [60]	3 [2]	**73 [64]**
6 points	0 [0]	0 [0]	53 [46]	3 [2]	**56 [48]**
7 points	0 [0]	0 [0]	18 [13]	0 [0]	**18 [13]**
8 points	0 [0]	0 [0]	5 [5]	1 [1]	**6 [6]**
9 points	0 [0]	0 [0]	2 [2]	0 [0]	**2 [2]**
10 points	0 [0]	0 [0]	2 [0]	0 [0]	**2 [0]**
Total	**21 [29]**	**31 [44]**	**568 [601]**	**17 [16]**	**637 [690]**
Of which not on NR.s and CR.s	*1 [2]*	*0 [0]*	*2 [1]*	*0 [0]*	*3 [3]*

Communes with 2-19 lodgings					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	1 [1]	1 [1]	16 [23]	1 [1]	**19 [26]**
2 points	2 [2]	4 [7]	32 [48]	0 [1]	**38 [58]**
3 points	1 [0]	5 [5]	20 [39]	1 [2]	**27 [46]**
4 points	2 [1]	3 [3]	91 [122]	1 [2]	**97 [128]**
5 points	0 [0]	2 [2]	44 [59]	3 [4]	**49 [65]**
6 points	0 [0]	1 [1]	52 [61]	3 [5]	**56 [67]**
7 points	0 [0]	1 [2]	22 [27]	1 [0]	**24 [29]**
8 points	0 [0]	0 [0]	11 [7]	0 [0]	**11 [7]**
9 points	0 [0]	0 [0]	11 [9]	0 [0]	**11 [9]**
10 points	0 [0]	0 [0]	2 [4]	1 [1]	**3 [5]**
Total	**6 [4]**	**17 [21]**	**301 [399]**	**11 [16]**	**335 [437]**
Of which not on NR.s and CR.s	*1 [0]*	*1 [1]*	*2 [2]*	*0 [0]*	*4 [3]*
Communes with 20 lodgings or more					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
2 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
3 points	0 [0]	0 [0]	1 [0]	0 [0]	**1 [0]**
4 points	0 [0]	0 [0]	3 [6]	0 [0]	**3 [6]**
5 points	0 [0]	0 [0]	1 [2]	0 [0]	**1 [2]**
6 points	0 [0]	0 [0]	9 [14]	4 [4]	**13 [18]**
7 points	0 [0]	0 [0]	1 [2]	0 [1]	**1 [3]**
8 points	0 [0]	0 [0]	0 [5]	0 [0]	**0 [5]**
9 points	0 [0]	0 [0]	1 [3]	0 [0]	**1 [3]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**0 [0]**	**0 [0]**	**16 [32]**	**4 [5]**	**20 [37]**
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*0 [1]*	*0 [0]*	*0 [1]*

Sources: authors' calculations based on NIS and MoT data. This Annex 4 is similar with the Annex 4 in Pop et al. (2019) for the data that are not in squared brackets

Annex 5. The structure of 948 communes, with 2012 rank, based on the average lodgings as provided by NIS and MoT [in brakets], 2008 ranking, and potential tourist attractions

Communes with 0 lodgings					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	0 [0]	10 [10]	0 [0]	**10 [10]**
2 points	1 [1]	3 [2]	26 [22]	0 [0]	**30 [25]**
3 points	1 [1]	0 [0]	20 [15]	0 [0]	**21 [16]**
4 points	0 [0]	12 [10]	177 [161]	3 [1]	**192 [172]**
5 points	1 [1]	3 [2]	58 [50]	0 [0]	**62 [53]**
6 points	0 [0]	1 [1]	37 [30]	2 [1]	**40 [32]**
7 points	0 [0]	1 [0]	8 [7]	1 [1]	**10 [8]**
8 points	0 [0]	0 [0]	1 [0]	1 [1]	**2 [1]**
9 points	0 [0]	0 [0]	4 [4]	0 [0]	**4 [4]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**3 [3]**	**20 [15]**	**341 [299]**	**7 [4]**	**371 [321]**
Average 2012 rank	***17.83 [17.83]***	***23.71 [23.23]***	***24.50 [24.45]***	***34.79 [35.92]***	***25.21 [25.36]***
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*4 [4]*	*0 [0]*	*4 [4]*
Communes with 1 lodging					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	1 [1]	5 [3]	0 [0]	**6 [4]**
2 points	0 [0]	1 [1]	15 [16]	1 [0]	**17 [17]**
3 points	0 [0]	0 [0]	11 [18]	0 [0]	**11 [18]**
4 points	0 [0]	2 [5]	115 [103]	6 [6]	**123 [114]**
5 points	0 [0]	2 [2]	67 [60]	3 [2]	**72 [64]**
6 points	0 [0]	0 [0]	51 [45]	3 [1]	**54 [46]**
7 points	0 [0]	0 [0]	18 [10]	0 [0]	**18 [10]**
8 points	0 [0]	0 [0]	5 [5]	1 [1]	**6 [6]**
9 points	0 [0]	0 [0]	2 [2]	0 [0]	**2 [2]**
10 points	0 [0]	0 [0]	2 [0]	0 [0]	**2 [0]**
Total	**0 [0]**	**6 [9]**	**291 [262]**	**14 [10]**	**311 [281]**
Average 2012 rank	***0 [0]***	***25.26 [23.40]***	***27.43 [26.82]***	***29.80 [24.28]***	***27.50 [24.83]***
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*2 [1]*	*0 [0]*	*2 [1]*

Communes with 2-19 lodgings					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	1 [1]	1 [0]	3 [5]	1 [1]	**6 [7]**
2 points	0 [0]	1 [3]	8 [11]	0 [1]	**9 [15]**
3 points	0 [0]	0 [0]	5 [10]	0 [0]	**5 [10]**
4 points	0 [0]	3 [2]	73 [95]	1 [1]	**77 [98]**
5 points	0 [0]	2 [3]	43 [58]	3 [4]	**48 [65]**
6 points	0 [0]	1 [1]	50 [59]	2 [5]	**53 [65]**
7 points	0 [0]	1 [2]	22 [27]	1 [0]	**24 [29]**
8 points	0 [0]	0 [0]	11 [7]	0 [0]	**11 [7]**
9 points	0 [0]	0 [0]	11 [9]	0 [0]	**11 [9]**
10 points	0 [0]	0 [0]	2 [4]	1 [1]	**3 [5]**
Total	**1 [1]**	**9 [11]**	**228 [285]**	**9 [13]**	**247 [310]**
Average 2012 rank	***1 [1]***	***22.55 [21.52]***	***30.85 [29.52]***	***33.03 [32.55]***	***21.86 [21.15]***
Of which not on NR.s and CR.s	*0 [0]*	*1 [1]*	*2 [2]*	*0 [0]*	*3 [3]*
Communes with 20 lodgings or more					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
2 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
3 points	0 [0]	0 [0]	1 [0]	0 [0]	**1 [0]**
4 points	0 [0]	0 [0]	3 [6]	0 [0]	**3 [6]**
5 points	0 [0]	0 [0]	1 [2]	0 [0]	**1 [2]**
6 points	0 [0]	0 [0]	8 [13]	4 [4]	**12 [17]**
7 points	0 [0]	0 [0]	1 [2]	0 [1]	**1 [3]**
8 points	0 [0]	0 [0]	0 [5]	0 [0]	**0 [5]**
9 points	0 [0]	0 [0]	1 [3]	0 [0]	**1 [3]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**0 [0]**	**0 [0]**	**15 [31]**	**4 [5]**	**19 [36]**
Average 2012 rank	***0 [0]***	***0 [0]***	***27.66 [32.99]***	***36.13 [37.85]***	***31.90 [35.42]***
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*0 [1]*	*0 [0]*	*0 [1]*

Sources: authors' calculations based on NIS and MoT data. This Annex 5 is similar with the Annex 5 in Pop et al. (2019) for the data that are not in squared brackets

Annex 6. Descriptive statistics
Annex 6A. Descriptive statistics for 2,861 communes and 1,913 communes without 2012 ranking

All 2,861 communes							
Descriptive statistics	rank2008	lodgings NIS	monuments	protect-areas	extra-resources	lodgings MoT	roads
Mean	3.055	1.025	3.437	1.456	0.353	1.556	1.039
Median	3.000	0.000	2.000	1.000	0.000	0.000	1.000
Mode	2.000	0.000	1.000	0.000	0.000	0.000	1.000
St.dev	1.670	5.236	3.895	1.773	0.527	7.606	0.952
Skewness	0.930	20.037	2.839	2.770	1.189	17.484	1.904
Kurtosis	0.852	537.202	13.698	16.088	0.816	401.610	4.416
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Max	10.000	173.000	46.000	21.000	3.000	224.000	7.000
25th percentile	2.000	0.000	1.000	0.000	0.000	0.000	0.250
50th percentile	3.000	0.000	2.000	1.000	0.000	0.000	1.000
75th percentile	4.000	1.000	5.000	2.000	1.000	1.000	1.000
Counts/valid	2,861	2,861	2,861	2,861	2,861	2,861	2,861
1,913 communes without 2012 ranking							
Descriptive statistics	rank2008	lodgings NIS	monu-ments	protect-areas	extra-resources	lodgings MoT	roads
Mean	2.251	0.317	2.751	1.033	0.315	0.452	1.041
Median	2.000	0.000	2.000	1.000	0.000	0.000	1.000
Mode	2.000	0.000	1.000	0.000	0.000	0.000	1.000
St.dev	1.019	0.909	3.176	1.198	0.477	1.198	0.929
Skewness	0.813	10.402	2.867	1.629	0.955	8.198	1.817
Kurtosis	1.169	212.560	13.298	4.034	-0.678	112.414	3.900
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Max	7.000	23.000	28.000	9.000	2.000	24.000	7.000
25th percentile	2.000	0.000	1.000	0.000	0.000	0.000	0.250
50th percentile	2.000	0.000	2.000	1.000	0.000	0.000	1.000
75th percentile	3.000	0.000	4.000	2.000	1.000	1.000	1.000
Count/valid	1,913	1,913	1,913	1,913	1,913	1,913	1,913

Source: authors' calculations

Annex 6B. Descriptive statistics for 948 communes with 2012 ranking

948 communes with 2012 ranking								
Descriptive statistics	rank 2008	lodgings NIS	monu-ments	protect-areas	extra-resources	rank 2012	lodgings MoT	roads
Mean	4.678	2.454	4.823	2.309	0.428	27.172	3.783	1.088
Median	4.000	1.000	4.000	2.000	0.000	26.500	1.000	1.000
Mode	4.000	0.000	2.000	1.000	0.000	21.500	0.000	1.000
St.dev	1.542	8.836	4.751	2.347	0.610	7.812	12.822	0.944
Skewness	0.432	12.103	2.496	2.331	1.256	0.457	10.504	2.033
Kurtosis	1.083	190.960	10.717	10.886	1.184	0.510	141.440	5.082
Min	1.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
Max	10.000	173.000	46.000	21.000	3.000	56.400	224.000	6.000
25th percentile	4.000	0.000	2.000	1.000	0.000	21.508	0.000	0.500
50th percentile	4.000	1.000	4.000	2.000	0.000	26.500	1.000	1.000
75th percentile	6.000	2.000	6.250	3.000	1.000	32.000	3.000	1.000
Count/valid	948	948	948	948	948	948	948	948

Source: authors' calculations

Annex 7. Correlation matrices
Annex 7A. Correlation matrices for 2,861 communes and 1,913 communes without 2012 ranking

All 2,861 communes							
	rank 2008	lodgings NIS	monu-ments	protect-areas	extra-resources	lodgings MoT	roads
rank2008							
lodgings NIS	0.220 (p<0.001)						
monuments	0.272 (p<0.001)	0.071 (p<0.001)					
protect-areas	0.355 (p<0.001)	0.181 (p<0.001)	0.106 (p<0.001)				
extra-resources	0.139 (p<0.001)	0.152 (p<0.001)	0.077 (p<0.001)	0.120 (p<0.001)			
lodgings MoT	0.240 (p<0.001)	0.986 (p<0.001)	0.080 (p<0.001)	0.199 (p<0.001)	0.146 (p<0.001)		
roads	0.005 (p=0.772)	0.052 (p=0.002)	0.086 (p<0.001)	0.061 (p<0.001)	-0.012 (p=0.515)	0.057 (p=0.002)	
1,913 communes without 2012 ranking							
	rank2008	lodgings NIS	monumen ts	protect-areas	extra-resources	lodgings MoT	roads
rank2008							
lodgings NIS	0.160 (p<0.001)						
monuments	0.196 (p<0.001)	0.051 (p=0.026)					
protect-areas	0.134 (p<0.001)	0.105 (p<0.001)	0.051 (p=0.025)				
extra-resources	0.026 (p=0.265)	0.037 (p=0.102)	0.006 (p=0.805)	0.058 (p=0.011)			
lodgings MoT	0.183 (p<0.001)	0.861 (p<0.001)	0.073 (p=0.002)	0.120 (p<0.001)	0.045 (p=0.048)		
roads	-0.023 (p=0.311)	0.180 (p<0.001)	0.092 (p<0.001)	0.062 (p=0.006)	-0.111 (p=0.645)	0.192 (p<0.001)	

Source: authors' calculations

Annex 7B. Correlation matrix for 948 communes with 2012 ranking

948 communes with 2012 scores								
	rank 2008	rank 2012	lodgings NIS	monu-ments	protect-areas	extra-resources	lodgings MoT	roads
rank2008								
rank2012	0.569 (p<0.001)							
lodgings NIS	0.149 (p<0.001)	0.211 (p<0.001)						
monuments	0.095 (p=0.003)	0.228 (p<0.001)	0.026 (p=0.426)					
protect-areas	0.213 (p<0.001)	0.188 (p<0.001)	0.146 (p<0.001)	0.005 (p=0.889)				
extra-resources	0.171 (p<0.001)	0.212 (p<0.001)	0.199 (p<0.001)	0.105 (p=0.001)	0.121 (p<0.001)			
lodgings MoT	0.170 (p<0.001)	0.241 (p<0.001)	0.969 (p<0.001)	0.033 (p=0.307)	0.162 (p<0.001)	0.0187 (p<0.001)		
roads	-0.033 (p=0.311)	0.281 (p<0.001)	0.052 (p=0.111)	0.066 (p=0.042)	0.042 (p=0.163)	-0.024 (p=0.458)	0.051 (p=0.120)	

Source: authors' calculations

Annex 8. Regression results
Annex 8A. Regression results for 2,861 communes and 1,913 communes without 2012 ranking

All 2,861 communes					
Dependent variable & model results	**Independent variables**	**Estimate**	**T-statistic**	**p-value**	**VIF**
rank2008	b_0 (intercept)	2.237	42.035	< 0.001	-
	monuments	0.101	13.765	< 0.001	1.023
	protect-areas	0.304	18.884	< 0.001	1.027
	extra-resources	0.260	4.823	< 0.001	1.020
	roads	-0.059	-1.970	0.049	1.011
R^2 (%) = 19.0%; p-value < 0.001; F = 166.979					
lodgings NIS	b_0 (intercept)	-1.724	7.605	< 0.001	-
	monuments	0.001	0.044	0.965	1.090
	protect-areas	0.311	5.455	< 0.001	1.156
	extra-resources	1.161	6.410	< 0.001	1.028
	rank2008	0.519	8.291	< 0.001	1.234
	roads	0.284	2.855	0.004	1.012
R^2 (%) = 7.6%; p-value < 0.001; F = 47.206					
lodgings MoT	b_0 (intercept)	-2.705	-8.258	< 0.001	
	monuments	0.012	0.317	0.751	1.090
	protect-areas	0.504	6.112	< 0.001	1.156
	extra-resources	1.540	5.886	< 0.001	1.028
	rank2008	0.829	9.155	< 0.001	1.234
	roads	0.397	2.758	0.006	1.012
R^2 (%) = 8.6%; p-value < 0.001; F = 53.715					

1,913 communes without 2012 ranking					
Dependent variable & model results	**Independent variables**	**Estimate**	**T-statistic**	**p-value**	**VIF**
rank2008	b_0 (intercept)	2.011	45.840	< 0.001	-
	monuments	0.062	8.688	< 0.001	1.011
	protect-areas	0.108	5.667	< 0.001	1.010
	extra-resources	0.035	0.741	0.459	1.004
	roads	-0.053	-2.181	0.029	1.012
R^2 (%) = 5.7%; p-value < 0.001; F = 28.668					
lodgings NIS	b_0 (intercept)	-0.244	-4.312	< 0.001	-
	monuments	1.479e-4	0.023	0.982	1.051
	protect-areas	0.054	3.160	0.002	1.027
	extra-resources	0.059	1.407	0.160	1.004
	rank2008	0.137	6.732	< 0.001	1.060
	roads	0.175	8.025	< 0.001	1.015
R^2 (%) = 6.5%; p-value < 0.001; F = 26.626					
lodgings MoT	b_0 (intercept)	-0.384	-5.196	< 0.001	-
	monuments	0.006	0.750	0.454	1.051
	protect-areas	0.082	3.695	< 0.001	1.027
	extra-resources	0.095	1.722	0.085	1.004
	rank2008	0.202	7.609	< 0.001	1.060
	roads	0.245	8.588	< 0.001	1.015
R^2 (%) = 8.1%; p-value < 0.001; F = 33.522					

Source: authors' calculations

Annex 8B. Regression results for 948 communes with 2012 ranking

948 communes with 2012 ranking					
Dependent variable & model results	**Independent variables**	**Estimate**	**T-statistic**	**p-value**	**VIF**
rank2008	b_0 (intercept)	4.174	42.003	< 0.001	-
	monuments	0.027	2.612	0.009	1.016
	protect-areas	0.130	6.266	< 0.001	1.017
	extra-resources	0.348	4.333	< 0.001	1.028
	roads	-0.068	-1.400	0.162	1.008
R^2 (%) = 7.5%; p-value < 0.001; F = 19.121					
rank2012 A	b_0 (intercept)	21.230	44.923	< 0.001	-
	monuments	0.313	6.430	< 0.001	1.016
	protect-areas	0.510	5.161	< 0.001	1.017
	extra-resources	2.298	6.018	< 0.001	1.028
	roads	2.085	8.990	< 0.001	1.008
R^2 (%) = 18.5%; p-value < 0.001; F = 53.371					
rank2012 B	b_0 (intercept)	9.888	15.039	< 0.001	-
	monuments	0.241	5.992	< 0.001	1.024
	protect-areas	0.156	1.887	0.060	1.060
	extra-resources	1.353	4.271	< 0.001	1.048
	rank2008	2.717	21.369	< 0.001	1.081
	roads	2.271	11.910	< 0.001	1.010
R^2 (%) = 45.1%; p-value < 0.001; F = 154.649					
lodgings NIS A	b_0 (intercept)	-2.669	-2.753	0.006	-
	monuments	-0.011	-0.184	0.854	1.024
	protect-areas	0.383	3.137	0.002	1.060
	extra-resources	2.485	5.321	< 0.001	1.048
	rank2008	0.576	3.074	0.002	1.081
	roads	0.489	1.738	0.083	1.010
R^2 (%) = 6.7%; p-value < 0.001; F = 13.469					

lodgings NIS B	b_0 (intercept)	-4.386	-4.090	< 0.001	-
	monuments	-0.053	0.879	0.380	1.063
	protect-areas	0.356	2.928	0.003	1.064
	extra-resources	2.250	4.802	< 0.001	1.069
	rank2008	0.104	0.460	0.646	1.605
	rank2012	0.174	3.639	< 0.001	1.821
	roads	0.094	0.314	0.753	1.162
R^2 (%) = 8.0%; p-value < 0.001; F = 13.577					
lodgings MoT A	b_0 (intercept)	-4.506	-3.210	0.001	-
	monuments	0.004	0.049	0.961	1.024
	protect-areas	0.633	3.581	< 0.001	1.060
	extra-resources	3.234	4.782	< 0.001	1.048
	rank2008	1.001	3.685	< 0.001	1.081
	roads	0.681	1.674	0.094	1.010
R^2 (%) = 7.1%; p-value < 0.001; F = 14.351					
lodgings MoT B	b_0 (intercept)	-7.544	-4.874	< 0.001	-
	monuments	-0.070	-0.806	0.421	1.063
	protect-areas	0.585	3.336	< 0.001	1.064
	extra-resources	2.818	4.169	< 0.001	1.069
	rank2008	0.166	0.506	0.613	1.605
	rank2012	0.307	4.461	< 0.001	1.821
	roads	-0.016	-0.037	0.970	1.162
R^2 (%) = 9.0%; p-value < 0.001; F = 15.515					

Source: authors' calculations

Annex 9. PLS-SEM results for the 2,861 communes considering NIS lodgings
Annex 9A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.248 (inner VIF: 1.026)	0.110 of which 0.040 indirect effect (inner VIF: 1.102)
Latent variable 2 (protect-areas)	-	-	-	0.320 (inner VIF: 1.025)	0.163 of which 0.051 indirect effect (inner VIF: 1.151)
Latent variable 3 (roads)	-	-	-	-0.030 (inner VIF: 1.007)	0.041 of which -0.005 indirect effect (inner VIF: 1.008)
Latent variable 4 (rank2008)	-	-	-	-	0.159 (inner VIF: 1.229)
Latent variable 5 (lodgings NIS)	-	-	-	-	-

(Source: authors' calculations)

Annex 9B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 9C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.149	1.000	-	-	-
Latent variable 3 (roads)	0.064	0.061 (0.061)	1.000	-	-
Latent variable 4 (rank2008)	0.294	0.355 (0.355)	0.005 (0.005)	1.000	-
Latent variable 5 (lodgings NIS)	0.137	0.181 (0.181)	0.058 (0.058)	0.220 (0.220)	1.000

Annex 9D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	14.267	0.000
Latent variable 1 → Latent variable 5	4.687	0.000
Latent variable 2 → Latent variable 4	19.239	0.000
Latent variable 2 → Latent variable 5	4.297	0.000
Latent variable 3 → Latent variable 4	1.662	**0.097**
Latent variable 3 → Latent variable 5	2.584	0.010
Latent variable 4 → Latent variable 5	7.009	0.000

Annex 9-1. PLS-SEM results for the 2,861 communes considering MoT lodgings (Source: authors' calculations)

Annex 9-1A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.249 (inner VIF: 1.026)	0.112 of which 0.044 indirect effect (inner VIF: 1.102)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 2 (protect-areas)	-	-	-	0.320 (inner VIF: 1.025)	0.180 of which 0.056 indirect effect (inner VIF: 1.151)
Latent variable 3 (roads)	-	-	-	-0.030 (inner VIF: 1.007)	0.039 of which -0.005 indirect effect (inner VIF: 1.008)
Latent variable 4 (rank2008)	-	-	-	-	0.176 (inner VIF: 1.230)
Latent variable 5 (lodgings MoT)	-	-	-	-	-

Annex 9-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 9-1C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.148	1.000	-	-	-
Latent variable 3 (rank2008)	0.064	0.061 (0.061)	1.000	-	-
Latent variable 4 (rank2008)	0.294	0.355 (0.355)	0.005 (0.005)	1.000	-
Latent variable 5 (lodgings MoT)	0.141	0.199 (0.199)	0.057 (0.057)	0.240 (0.240)	1.000

Annex 9-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	13.001	0.000
Latent variable 1 → Latent variable 5	2.776	0.006
Latent variable 2 → Latent variable 4	20.150	0.000
Latent variable 2 → Latent variable 5	3.809	0.000
Latent variable 3 → Latent variable 4	1.819	**0.070**
Latent variable 3 → Latent variable 5	3.158	0.002
Latent variable 4 → Latent variable 5	7.983	0.000

Annex 10. PLS-SEM results for the 1,913 communes considering NIS lodgings

Annex 10A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 4 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.190 (inner VIF: 1.011)	0.036 of which 0.030 indirect effect (inner VIF: 1.051)
Latent variable 2 (protect-areas)	-	-	-	0.126 (inner VIF: 1.007)	0.092 of which 0.019 indirect effect (inner VIF: 1.024)
Latent variable 3 (roads)	-	-	-	-0.048 (inner VIF: 1.011)	0.171 of which -0.007 indirect effect (inner VIF: 1.014)
Latent variable 4 (rank2008)	-	-	-	-	0.153 (inner VIF: 1.060)
Latent variable 5 (lodgings NIS)	-	-	-	-	-

(Source: authors' calculations)

Annex 10B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 10C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.060	1.000	-	-	-
Latent variable 3 (rank2008)	0.089	0.062 (0.062)	1.000	-	-
Latent variable 4 (rank2008)	0.198	0.134 (0.134)	-0.023 (0.023)	1.000	-
Latent variable 5 (lodgings NIS)	0.056	0.105 (0.105)	0.180 (0.180)	0.160 (0.160)	1.000

Annex 10D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	9.132	0.000
Latent variable 1 → Latent variable 5	0.225	**0.822**
Latent variable 2 → Latent variable 4	5.373	0.000
Latent variable 2 → Latent variable 5	3.052	0.002
Latent variable 3 → Latent variable 4	2.093	0.037
Latent variable 3 → Latent variable 5	4.711	0.000
Latent variable 4 → Latent variable 5	4.792	0.000

Annex 10-1. PLS-SEM results for the 1,913 communes considering MoT lodgings

Annex 10-1A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 4 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.194 (inner VIF: 1.011)	0.057 of which 0.033 indirect effect (inner VIF: 1.051)
Latent variable 2 (protect-areas)	-	-	-	0.126 (inner VIF: 1.007)	0.105 of which 0.022 indirect effect (inner VIF: 1.024)
Latent variable 3 (roads)	-	-	-	-0.048 (inner VIF: 1.011)	0.181 of which -0.008 indirect effect (inner VIF: 1.014)
Latent variable 4 (rank2008)	-	-	-	-	0.171 (inner VIF: 1.060)
Latent variable 5 (lodgings MoT)	-	-	-	-	-

(Source: authors' calculations)

Annex 10-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 10-1C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.061	1.000	-	-	-
Latent variable 3 (rank2008)	0.088	0.062 (0.062)	1.000	-	-
Latent variable 4 (rank2008)	0.197	0.134 (0.134)	-0.023 (0.023)	1.000	-
Latent variable 5 (lodgings MoT)	0.080	0.120 (0.120)	0.192 (0.192)	0.183 (0.183)	1.000

Annex 10-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	9.161	0.000
Latent variable 1 → Latent variable 5	0.827	**0.409**
Latent variable 2 → Latent variable 4	5.185	0.000
Latent variable 2 → Latent variable 5	3.710	0.000
Latent variable 3 → Latent variable 4	2.064	0.040
Latent variable 3 → Latent variable 5	5.136	0.000
Latent variable 4 → Latent variable 5	5.708	0.000

Annex 11. PLS-SEM results for the 948 communes without considering rank2012 and considering NIS lodgings

Annex 11A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.161 (inner VIF: 1.014)	0.182 of which 0.016 indirect effect (inner VIF: 1.042)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 2 (protect-areas)	-	-	-	0.194 (inner VIF: 1.012)	0.123 of which 0.019 indirect effect (inner VIF: 1.058)
Latent variable 3 (roads)	-	-	-	-0.040 (inner VIF: 1.002)	0.048 of which -0.004 indirect effect (inner VIF: 1.004)
Latent variable 4 (rank2008)	-	-	-	-	0.097 (inner VIF: 1.078)
Latent variable 5 (lodgings NIS)	-	-	-	-	-

(Source: authors' calculations)

Annex 11B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 11C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-		-	-

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 2 (protect-areas)	0.117	1.000	-	-	-
Latent variable 3 (roads)	-0.009	0.045 (0.045)	1.000		
Latent variable 4 (rank2008)	0.184	0.213 (0.213)	-0.033 (0.033)	1.000	-
Latent variable 5 (lodgings NIS)	0.196	0.146 (0.146)	0.052 (0.052)	0.149 (0.149)	1.000

Annex 11D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.374	0.000
Latent variable 1 → Latent variable 5	4.521	0.000
Latent variable 2 → Latent variable 4	7.198	0.000
Latent variable 2 → Latent variable 5	2.527	0.012
Latent variable 3 → Latent variable 4	1.286	**0.199**
Latent variable 3 → Latent variable 5	2.335	0.020
Latent variable 4 → Latent variable 5	4.294	0.000

Annex 11-1. PLS-SEM results for the 948 communes without considering rank2012 and considering MoT lodgings

Annex 11-1A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.162 (inner VIF: 1.014)	0.169 of which 0.019 indirect effect (inner VIF: 1.042)
Latent variable 2 (protect-areas)	-	-	-	0.196 (inner VIF: 1.012)	0.141 of which 0.023 indirect effect (inner VIF: 1.057)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 3 (roads)	-	-	-	-0.041 (inner VIF: 1.002)	0.045 of which -0.005 indirect effect (inner VIF: 1.004)
Latent variable 4 (rank2008)	-	-	-	-	0.119 (inner VIF: 1.079)
Latent variable 5 (lodgings MoT)	-	-	-	-	-

(Source: authors' calculations)

Annex 11-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 11-1C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-		-	-
Latent variable 2 (protect-areas)	0.116	1.000	-	-	-

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 3 (roads)	-0.006	0.045 (0.045)	1.000		
Latent variable 4 (rank2008)	0.185	0.213 (0.213)	-0.033 (0.033)	1.000	-
Latent variable 5 (lodgings MoT)	0.185	0.162 (0.162)	0.051 (0.051)	0.170 (0.170)	1.000

Annex 11-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.444	0.000
Latent variable 1 → Latent variable 5	4.601	0.000
Latent variable 2 → Latent variable 4	6.721	0.000
Latent variable 2 → Latent variable 5	3.414	0.001
Latent variable 3 → Latent variable 4	1.348	**0.178**
Latent variable 3 → Latent variable 5	2.114	0.035
Latent variable 4 → Latent variable 5	4.879	0.000

Annex 12. PLS-SEM results for the 948 communes rank2012 included and considering NIS lodgings

Annex 12A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.168 (inner VIF: 1.010)	0.268 of which 0.090 indirect effect (inner VIF: 1.041)	0.161 of which 0.042 indirect effect (inner VIF: 1.098)
Latent variable 2 (protect-areas)	-	-	-	0.198 (inner VIF: 1.012)	0.149 of which 0.106 indirect effect (1.055)	0.128 of which 0.026 indirect effect (inner VIF: 1.058)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings NIS)
Latent variable 3 (roads)	-	-	-	-0.044 (inner VIF: 1.002)	0.270 of which -0.024 indirect effect (inner VIF: 1.004)	0.044 of which 0.037 indirect effect (inner VIF: 1.160)
Latent variable 4 (rank2008)	-	-	-	-	0.536 (inner VIF: 1.081)	0.101 of which 0.076 indirect effect (inner VIF: 1.601)
Latent variable 5 (rank2012)	-	-	-	-	-	0.142 (inner VIF: 1.807)
Latent variable 6 (lodgings NIS)	-	-	-	-	-	-

(Source: authors' calculations)

Annex 12B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (rank2012)	1.000	1.000	1.000	1.000
Latent variable 6 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 12C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-	-
Latent variable 2 (protect-areas)	0.101	1.000	-	-	-	-
Latent variable 3 (roads)	0.014	0.045 (0.045)	1.000	-	-	-
Latent variable 4 (rank2008)	0.187	0.213 (0.213)	-0.033 (0.033)	1.000	-	-
Latent variable 5 (rank2012)	0.287	0.188 (0.188)	0.281 (0.281)	0.569 (0.569)	1.000	-
Latent variable 6 (lodgings NIS)	0.174	0.146 (0.146)	0.052 (0.052)	0.149 (0.149)	0.211 (0.211)	1.000

Annex 12D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.855	0.000
Latent variable 1 → Latent variable 5	6.040	0.000
Latent variable 1 → Latent variable 6	2.998	0.003
Latent variable 2 → Latent variable 4	7.108	0.000
Latent variable 2 → Latent variable 5	1.772	**0.077**
Latent variable 2 → Latent variable 6	2.554	0.011
Latent variable 3 → Latent variable 4	1.405	**0.161**
Latent variable 3 → Latent variable 5	11.721	0.000
Latent variable 3 → Latent variable 6	0.228	**0.820**
Latent variable 4 → Latent variable 5	17.343	0.000
Latent variable 4 → Latent variable 6	0.731	**0.465**
Latent variable 5 → Latent variable 6	2.648	0.008

Annex 12-1. PLS-SEM results for the 948 communes rank2012 included and considering MoT lodgings

Annex 12-1A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.168 (inner VIF: 1.010)	0.270 of which 0.090 indirect effect (inner VIF: 1.040)	0.152 of which 0.052 indirect effect (inner VIF: 1.099)
Latent variable 2 (protect-areas)	-	-	-	0.198 (inner VIF: 1.012)	0.149 of which 0.106 indirect effect (1.054)	0.146 of which 0.032 indirect effect (inner VIF: 1.058)
Latent variable 3 (roads)	-	-	-	-0.045 (inner VIF: 1.002)	0.270 of which -0.024 indirect effect (inner VIF: 1.004)	0.047 of which 0.037 indirect effect (inner VIF: 1.160)
Latent variable 4 (rank2008)	-	-	-	-	0.536 (inner VIF: 1.081)	0.121 of which 0.095 indirect effect (inner VIF: 1.601)
Latent variable 5 (rank2012)	-	-	-	-	-	0.177 (inner VIF: 1.809)
Latent variable 6 (lodgings MoT)	-	-	-	-	-	-

(Source: authors' calculations)

Annex 12-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (rank2012)	1.000	1.000	1.000	1.000
Latent variable 6 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 12-1C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-	-
Latent variable 2 (protect-areas)	0.099	1.000	-	-	-	-
Latent variable 3 (roads)	0.016	0.045 (0.045)	1.000	-	-	-
Latent variable 4 (rank2008)	0.186	0.213 (0.213)	-0.033 (0.033)	1.000	-	-
Latent variable 5 (rank2012)	0.288	0.188 (0.188)	0.281 (0.281)	0.569 (0.569)	1.000	-
Latent variable 6 (lodgings MoT)	0.167	0.162 (0.162)	0.051 (0.051)	0.170 (0.170)	0.241 (0.241)	1.000

Annex 12-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.815	0.000
Latent variable 1 → Latent variable 5	5.684	0.000
Latent variable 1 → Latent variable 6	2.626	0.009
Latent variable 2 → Latent variable 4	7.119	0.000
Latent variable 2 → Latent variable 5	1.681	**0.093**
Latent variable 2 → Latent variable 6	2.972	0.003
Latent variable 3 → Latent variable 4	1.421	**0.156**
Latent variable 3 → Latent variable 5	12.440	0.000
Latent variable 3 → Latent variable 6	0.178	**0.859**
Latent variable 4 → Latent variable 5	16.858	0.000
Latent variable 4 → Latent variable 6	0.664	**0.507**
Latent variable 5 → Latent variable 6	3.022	0.003