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# ANALYSIS OF THE AGRITOURISM DEVELOPMENT POTENTIAL OF DEPOPULATED VILLAGES IN HUNEDOARA COUNTY USING THE FISHBEIN-ROSENBERG MODEL

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***Abstract***

*The purpose of the paper was to analyze the most depopulated 20 villages in Hunedoara County in order to identify the possibilities of rescue from extinction by exploiting their agro-tourism potential. The rural area of Hunedoara County has a high agro-tourism potential due, firstly, to the very beautiful landscapes and secondly to the numerous tourist objectives that can be found on the County territory. Starting from the preferences of tourists and investors that were identified through previous research, we analyzed the agritourism potential of the most depopulated 20 villages in Hunedoara County. This analysis aimed at identifying and scaling ten indicators that were used later in the development of a Fishbein-Rosenberg mathematical model. The results of this model is a hierarchy of villages analyzed according to the potential of agritourism development. This hierarchy can represent a starting point for investors that are interested in developing agritouristic facilities in the depopulated villages in Hunedoara County.*

***Key words*****:** *rural tourism, agritourism, consumer behavior, decision making, rural development*

## INTRODUCTION

Although the depopulation trend is found in most rural areas in Romania, it should be noted that in the case of Hunedoara County, depopulation of the rural area is much more pronounced [13].

According to data from National Institute of Statistics, in Romania, during the period 1992-2019, the population domiciled in the rural areas decreased by 5.15%. In the same period, in Hunedoara County, the population domiciled in the rural area decreased by 22.38%, 4,3 times more than at the national level [17].

This massive decline in the rural area population can lead to the disappearance of some rural communities that have lasted and developed for hundreds of years [1].

According to the figures provided by the last census of the population, a number of 73 villages in Hunedoara County had less than 50 inhabitants. Noteworthy is the fact that 48 of them had less than 30 inhabitants and four villages had under 3 inhabitants [16].

Considering the beautiful landscapes, the history and traditions of the places and the numerous tourist objectives present in Hunedoara County, the handiest solution for rescuing these villages from extinction can be finding, encouraging and supporting some private persons or legal entities who are willing to invest in agritourism facilities in the depopulated villages [11].

Another agro-tourism investor's advantage is the possibility to access European funding through National Rural Development Programme, sM 6.2 and sM 6.4. [8].

Besides the beautiful landscapes and the multitude of natural and anthropic tourist objectives that are found near the analyzed villages, the very low prices of land and households in the depopulated villages can represent an additional essential reason for the people interested to invest in creating agritourism facilities in these villages [3].

We started this research using the example of Rosia village in Balșa commune. In this depopulated village, which at the 2011 census had only one inhabitant, a private investor

managed to buy most of the households and land at a convenient price.
Currently, the investor has completed the repair of the electricity supply network and the construction of water grid. The works continue for the repair of the households and their arrangement for the agro-tourism activity
Starting from this example and correlating the information regarding this business with the information obtained from the market research regarding the preferences of the consumers of tourism and agritourism services, we analyzed the possibility of implementing this example in the other depopulated villages in Hunedoara County [4].

## MATERIALS AND METHODS

The model used to conduct this research is the Fishbein model, whose pioneer was Ajzen and Fishbein. For them an attitude is someone's feeling in a favorable or unfavorable way toward some stimulus objects [7]. Attitudes are at the core of this research because, help us to create a frame of mind, liking or disliking, in this context referring to choosing agritouristic facilities, instead of the conventional ones. In other words, are people feelings favorable or unfavorable towards this idea?
The behavioral intention, which means the person's desire to undergo a specific action under a certain situation, is influenced by the behavioral attitude and the subjective norms of the model.
Both subjective norms and behavioral attitudes are enriched with weights, stated by the next formula:
$BI = AW1 + SW2$
The abbreviations above means: BI refers to the behavioral intention, A means behavioral attitude and S is subjective norms, W1 and W2 are the weights for both subjective norms and behavioral attitude. So basically, the model weight each belief by its evaluation and importance [15].
This model assumes that someone's positive or negative feeling regarding an idea or an object is governed by two factors. One refers to the personal belief toward the idea or the object, if they have certain features or not and the person evaluation of those features [2].
As it could be seen, his main hypothesis is that a person behavioral intention is regulated
by both attitudinal and personal component and a normative and social component. By personal attitude he understands someone options of being in favor or not of undergoing the behavior. In terms of the subjective norms, the meaning behind them is the social pressure felt by a person to behave in certain ways. For him, the reasons play a major role in his analysis [9].
This is a one of the most widely used model in consumer behavior research [18].

## RESULTS AND DISCUSSIONS

Starting from the preferences of tourists and investors that were identified through previous research, we analyzed the agritourism potential of each village. This analysis aimed at identifying and scaling ten indicators that were used later in the development of a Fishbein-Rosenberg mathematical model [7]. From this model resulted a hierarchy of villages analyzed according to their potential of agritourism development. This hierarchy may represent a starting point for investors interested in investing in the creation of agritourism facilities in the depopulated villages in Hunedoara County.
The Fishbein model was made using ten indicators. The relevance of the indicators was weighted according to their importance.
The weighting of the indicators was done in two stages. The first stage consisted of combining the results obtained from two previous studies regarding the preferences of consumers of agritourism services and the requirements of potential investors in agritourism services [4]. This stage was necessary because, the indicator "price of buildings and land" was found only in the study on the requirements and preferences of potential investors. The second stage involved an additional weighting of the indicators taking into account the data regarding the example of the agro-tourism development of the Roșia village in Balșa commune. The analysis revealed, the following scale of indicators importance: 1. Access road; 2. Landscape; 3. Land and constructions prices; 4. Electricity

grid; 5. Distance to the main tourist objectives; 6. Labor force; 7. Buildings state; 8. GSM signal coverage; 9. Peace and intimacy; 10. Village and commune notoriety.

Table 1. Fishbein-Rosenberg model for agritourism development potential

| No. | Village | Commune | Acces roads | Landscape | Land price | Electricity | Distance | Labor force | Buildings state | GSM signal coverage | Peace and intimacy | Notoriety | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ex. | Roșia | Balșa | 70 | 81 | 8 | 70 | 30 | 35 | 24 | 24 | 16 | 7 | 365.0 |
| 1 | Gialacuta | Brănișca | 70 | 63 | 48 | 52.5 | 24 | 30 | 20 | 22.5 | 16 | 2 | 348.0 |
| 2 | Goleș | Toplița | 40 | 81 | 40 | 70 | 24 | 25 | 24 | 22.5 | 14 | 2 | 342.5 |
| 3 | Tomnatec | Bulzeștii de Sus | 50 | 72 | 48 | 52.5 | 24 | 25 | 16 | 22.5 | 18 | 1 | 329.0 |
| 4 | Gotești | Răchitova | 60 | 72 | 72 | 17.5 | 24 | 30 | 16 | 15 | 18 | 1 | 325.5 |
| 5 | Valea mare de Criș | Tomești | 40 | 72 | 40 | 52.5 | 30 | 25 | 16 | 22.5 | 18 | 6 | 322.0 |
| 6 | Stănculești | Bulzeștii de Sus | 40 | 72 | 48 | 52.5 | 24 | 25 | 16 | 22.5 | 18 | 1 | 319.0 |
| 7 | Dragu-Brad | Blăjeni | 60 | 72 | 72 | 17.5 | 18 | 35 | 12 | 7.5 | 18 | 3 | 315.0 |
| 8 | Răchițaua | Bătrâna | 40 | 81 | 64 | 35 | 24 | 10 | 16 | 22.5 | 18 | 4 | 314.5 |
| 9 | Ludeștii de Sus | Orăștioara de Sus | 30 | 72 | 32 | 52.5 | 36 | 30 | 16 | 22.5 | 18 | 5 | 314.0 |
| 10 | Piatra | Bătrâna | 40 | 72 | 64 | 35 | 24 | 10 | 12 | 22.5 | 18 | 4 | 301.5 |
| 11 | Dumești | Vorța | 90 | 63 | 16 | 35 | 24 | 15 | 16 | 22.5 | 16 | 1 | 298.5 |
| 12 | Bercu | Bretea Română | 90 | 18 | 8 | 70 | 24 | 25 | 28 | 22.5 | 10 | 1 | 296.5 |
| 13 | Văleni | Baia de Criș | 70 | 45 | 8 | 70 | 24 | 25 | 16 | 22.5 | 12 | 1 | 293.5 |
| 14 | Deleni | Zam | 40 | 63 | 40 | 52.5 | 18 | 15 | 16 | 22.5 | 16 | 1 | 284.0 |
| 15 | Brășeu | Zam | 30 | 63 | 40 | 52.5 | 18 | 15 | 16 | 22.5 | 18 | 1 | 276.0 |
| 16 | Valea | Zam | 30 | 54 | 40 | 52.5 | 18 | 15 | 12 | 22.5 | 16 | 1 | 261.0 |
| 17 | Alun | Bunila | 50 | 36 | 16 | 52.5 | 24 | 15 | 24 | 15 | 16 | 6 | 254.5 |
| 18 | Bejan Târnăvița | Șoimuș | 60 | 18 | 32 | 35 | 30 | 25 | 12 | 22.5 | 14 | 1 | 249.5 |
| 19 | Bocșa Mare | Certejul de Sus | 60 | 9 | 40 | 52.5 | 24 | 20 | 12 | 15 | 14 | 1 | 247.5 |
| 20 | Măgureni | Beriu | 40 | 72 | 40 | 20 | 12 | 10 | 12 | 7.5 | 16 | 4 | 233.5 |

Source: Authors' own calculation.

During the visits made in each village, we evaluated and scored each attribute separately, on a scale from 1 to 10 in increments of 0.5 points.

The evaluation and scoring took into account the possibilities of implementing the agritourism development model developed in Roșia village from Balșa commune in the depopulated villages studied. The final scores for each attribute presented in Table 1.

A total of 9 of all 10 attributes concern both tourists and investors. The only attribute that strictly concerns investors is the land price and the constructions price, which ranks 3rd as important, because this indicator is the main competitive advantage of the most depopulated villages compared to other villages which are not yet depopulated.

The access road attribute in on the first place. According to the opinions of both potential investors and tourists, the existence of a road that can allow access to the location is the most important condition that tourists have.

Very few people are willing to spend their holidays in a very remote place that has no access road nearby [10].

The landscape attribute is on second place because, in previously conducted research, both tourists and potential investors considered that landscape is the tourist destination's strongest point.

The attribute of land and construction prices is on third place because directly affects the potential investors business plan. This attribute can also indirectly affect tourists because investors who will build agritourism structures in depopulated villages will invest less money. in buying land, which will allow them to invest more in facilities and services and will also allow them to offer very competitive prices and higher discount offers compared to other agritourism pensions that required higher investments [11].

The attribute on the fourth position is represented by the existence and the state of the electrical grid in the analyzed villages. This attribute is considered vital by both tourists and potential investors. Most of the studied villages are already connected to the electrical grid, except for three villages, two of them, Piatra and Răchițaua, are located in the commune of Batrâna and have the possibility to be connected to the electricity grid at a reasonable

cost, because the direct distance is less than 2 km from the existing network. Unfortunately, in the case, of Măgureni village from Beriu commune, the distance from the first village that has electrical grid is over 5 km and the relief is very rugged. The investment needed to bring electricity in this village is very high and the only economically viable solution is to achieve electricity on site using photovoltaic panels. In the case of villages that are already connected to the network, the score was given in terms of the percentage of constructions connected to the network and the condition of the poles and electrical transformers.

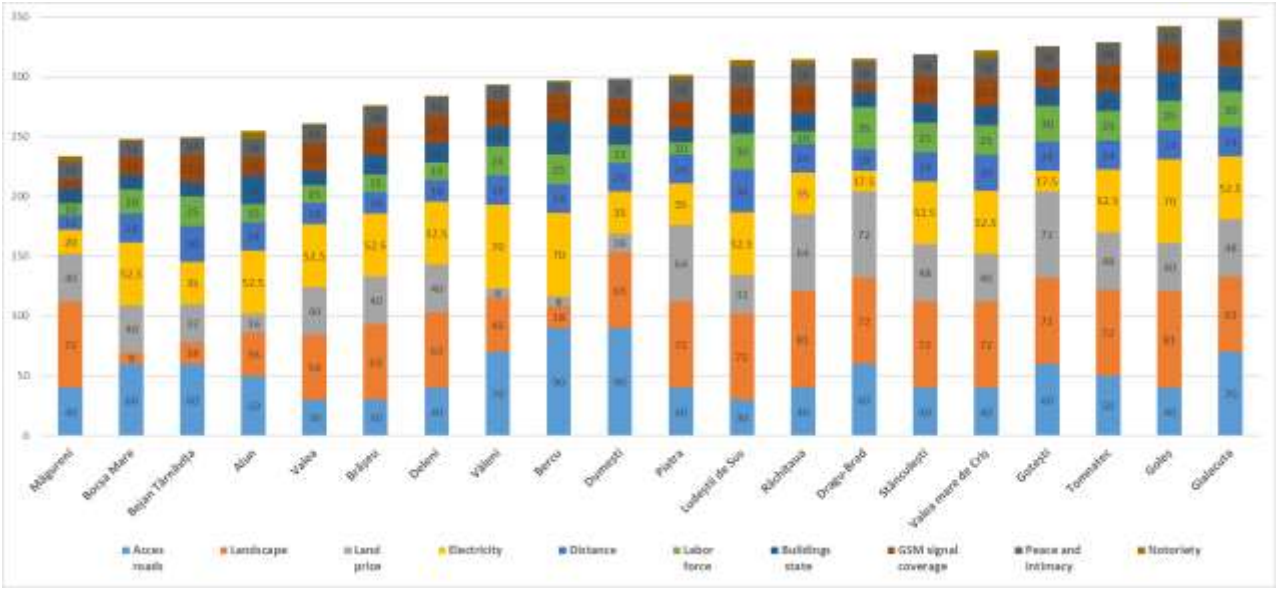


Fig. 1. The analyzed attributes share within the score obtained by each village
Source: Authors' own calculation.

Distance is the attribute on position number five. In calculating the score for this attribute for each village it was taken into account the distance to the main County transit roads, the main urban settlements and the distance to the main tourist attractions in Hunedoara County.

In the case of the labor force indicator (6th place), the demographic situation of the neighboring villages and of the commune as a whole was taken into account in order to evaluate the existing human capital [12]. This attribute was considered very important by potential investors and important by tourists who value the touristic units' staff quality [5].

The attribute on the seventh place is the condition of the constructions. This attribute is more important for investors because many households in depopulated villages are in an advanced state of degradation. This brings with it a higher level of investment for potential investors [6]. The calculation of this indicator also took into account the price of housing. Each village received a score depending on the number of houses and their condition. Even degraded constructions have been considered because they can bring certain benefits to potential investors, first of all they can be a source of building materials, wood and bricks that have a vintage look.

Eighth attribute by importance is represented by the GSM signal. In most of the villages studied, there is signal from at least one mobile phone operator. The score was given according to the number of mobile operators that have a signal in the respective areas and according to the signal strength in the three main categories GSM-2G, UMTS-3G and LTE-4G.

Peace and quiet is the ninth attribute. This attribute is especially appreciated by tourists living in urban areas. In the context of this research, most villages obtained high scores of this indicator because they are depopulated.

The last attribute is represented by the notoriety of the village or commune. In this case, the score was awarded based on the number of articles published in the written press or online, as well as the mention of villages in television reports.

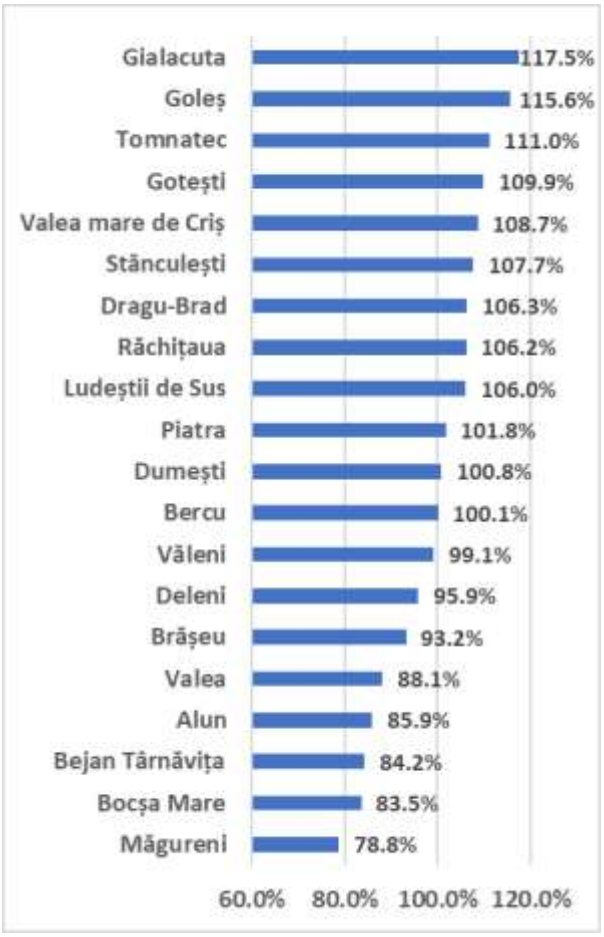


Fig. 2. Comparison of the analyzed villages according to the difference from the average potential of agritourism development
Source: Authors' own calculation.

From Fig. 2 it can be seen that 12 of the 20 villages analyzed obtained a score above average.

The scores obtained by each village for each attribute following field research were multiplied by the factor importance given by potential tourists and investors and the result represents the score of potential agritourism development for each analyzed village from the perspective of the opportunity for implementation of the agritourism development model applied in Roșia village from Balșa commune.

The villages of Gialacuta and Goleș obtained the highest scores and stood out at the top of the ranking. These villages have the greatest potential for applying the Roșia village. agritourism development model.

The villages of Ludeștii de Sus, Răchițaua, Dragu-Brad, Stănculești, Valea mare de Criș, Gotești and Tomnatec, obtained high scores by 6% -11% above average.

The villages of Văleni, Bercu, Dumești and Piatra obtained scores close to the average, so they have an average potential for implementing the proposed agritourism development model.

The villages of Bocșa Mare, Bejan Târnăvița, Alun, Valea, Brășeu, Deleni and Măgureni obtained scores significantly lower than the general average of the villages studied. This score does not necessarily represent the fact that they do not have high agritourism potential. This fact means that these villages are not suitable for the implementation of the agritourism development model applied in Roșia village from Balșa commune.

Another advantage of implementing this model of sustainable development is the fact that investors can use efficiently and productively the land areas purchased for the establishment of agricultural farms [14].

This study limitations are are related to the fact that only most depopulated twenty villages in Hunedoara County were analyzed. Another study limitation came from the evaluation of the landscape attribute may be biased by the author's subjectivism [18].

## CONCLUSIONS

In conclusion, this study results shows that the agritourism development model realized in Roșia village from Balșa commune could be successfully applied in most of the other villages in Hunedoara County that have been analyzed in this paper.

It is observed that the proposed development model is best suited to villages that have a high degree of depopulation. This is due to the fact that land prices in these villages are substantially lower compared to land prices in villages that have a lower depopulation degree.

The main impediment identified in this study is the lack of public infrastructure that affects most villages presented in this study. Given the very small investments made by local and central authorities in the last 30 years to develop the infrastructure elements needed to save these villages, it is clear that the interests of the few inhabitants who still populate these

villages are not valued and sustained at all. Attracting and convincing investors to purchase all the households and lands in these villages in order to be able to implement an integrated model of agritourism development similar to the model applied in Roșia village it may be the only solution to save these villages.

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