
MODELLING URBAN ECONOMIC DEVELOPMENT THROUGH HERITAGE TOURISM SPATIAL ANALYSIS

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Abstract

Sustainable development of urban areas tends to be one of the most important preoccupations for national authorities. Various economical and environmental factors, the technology, the socio-demographical traits of the population, the investments and business types in the area are just a few elements which may influence the development or the decay of a city. For understanding this complex phenomenon, and for modelling the urban growth in terms of citizens' welfare, social, environmental and cultural values preservation, different theories have been built along time. The present paper aims to bring in discussion a nowadays opportunity risen as a result of our advanced digital society – spatial analysis. Thus, by identifying and by measuring economic and behavioural attributes in terms of heritage tourism, by mapping those through GIS instruments, strategic decisions regarding urban development may be taken more correctly and more easily. As a result, this article presents a model of spatial analysis for Baia Mare city in terms of heritage tourism and economic development, outlining directions for urban development optimization.

Keywords

Heritage Tourism, GIS, Spatial Analysis, Urban Regeneration, Business

JEL Classification

L86, O12, O18, P25, R12

Introduction

The issue of sustainability is one of a growing importance in all sectors of activity and it has to be a priority when planning for urban regeneration. Very often, natural resources are not equally spread across a country's territory; from various reasons, infrastructure may be developed in some parts, while in others it may be damaged; tradition, history and natural landscape add personality to some places, while others may lack any distinctive marks. Due to those, in the same country, some regions become more economically developed, hence more attractive for the population, than others. In this context, urban areas are the most sensitive as companies and investments move there where business contacts and opportunities thrive, there where infrastructure, resources and know how facilitates their

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development. Urban agglomerations often attract more businesses, more investments and more people migrating from the poorer areas with fewer development perspectives. Thus, while some urban areas become over populated with local inhabitants and visitors, others turn into desolated and inert places that lack the dynamism and the prosperity brought by an affluent business environment requiring a large number of motivated employees. Thus, while excessive agglomerations endanger heritage assets, environment and the socio-cultural particularities of the area, depopulated cities lack both the financial and the human resources that would allow them to revive the local economy and to preserve the socio-cultural specificity. In order to balance these regional discrepancies, heritage assets should be taken into consideration as part of regional and national socio-economic policies, as heritage is one key driver in tourism sector development (Sabou, 2015). In the same time, acknowledging the importance of heritage tourism opens new perspectives for reaching the sustainability objectives.

Finding the solutions for maintaining the balance between economic developments, a good socio-cultural environment and environmental protection is a great challenge for national, regional and local authorities. The manner in which each authority deals with this issue is reflected in the found and applied solutions. However, establishing the patterns for various economic, environmental, social and cultural phenomena that may influence the development of an urban area is one of the key points in understanding the mechanism of growth. Spatial analysis of data linking these variables with their geographical occurrence may solve complex issues related to urban infrastructure development, investments priorities, environmental protection and economic expansion (Childs, 2004). By taking into account the spatial localization of the studied phenomenon, it measures relationships and predicts future transformations.

1. Review of the scientific literature

Urban regeneration means solving the urban problems through long term strategies, the ultimate goal being the improvement of the economic, physical, social and environmental conditions (Roberts, 2000; Alpopi and Manole, 2009; Tsou et al, 2014). Exploiting the heritage of the cities may be a way out to revitalize the economic, environmental and social functions of urban areas, by promoting sustainable heritage tourism policies.

The heritage of one nation brings out the tradition, the history and the values of the society. Taking into account the advantages of exploiting the heritage and its impact on the economic sector, the real challenge for authorities would be to answer to the following questions: what are the main priorities when choosing the heritage assets to be preserved and included in the development strategies of a city and what would be the social, economical and environmental effects of their choices. The scientific research deployed in this area indicates various models aiming to detect patterns of factors influencing the regional development through heritage tourism. Despite some differences, most of these models take into consideration the changes heritage tourism produces in the daily lives of the residents, by monitoring the touristic demand statistics specific for the area and the development of infrastructure and of certain business fields.

Designing strategies for urban regeneration through heritage tourism involves acknowledging the need for revitalization of urban areas through specific key points:

- Rehabilitation of historical/heritage areas

- Improving life conditions in residential areas, especially in those prone to over traffic and industrial pollution or to an undesired isolation (i.e. poorer marginal quarters which lack public transport, which have very few schools, shops and entertainment places in the surroundings, have damaged roads and neglected landscaping etc);
- Rehabilitation of the public spaces according to the proper architectural style that would harmoniously integrate within the heritage specificity urban authorities want to promote;
- Rethinking urban infrastructure from the point of view of tourists flows, residential impact and business development support.

In order to achieve these objectives, the whole social, economical and environmental context has to be considered. Specific to our digital society, Geographical Information Systems (GIS) applications have proved to be most useful tools for this purpose, because they gather large amounts of information from various areas of interest and display it in a visually attractive manner throughout layers and dynamic correlations (Brueckner and Tetiwat, 2008).

Modelling and interpreting these correlations are the main attributes of spatial analysis applications. When planning for investments with the purpose of developing the heritage tourism, the economic component is vital. As the future flows of incomes generated by this activity should justify the expenses made by authorities and private environment, as well as the short-medium term inconveniences the population has to experience due to public works and changes in infrastructure, it is vital to map the spatial distribution of economic values linked to heritage. Use value and non-use value components don't show every time similar patterns. For a better understanding of these and for obtaining a complete picture of heritage economic values it is recommend to displayed them separately, s well as combined. In this way, mapping process allows the identification of all economic values from the entire urban and surrounding areas.

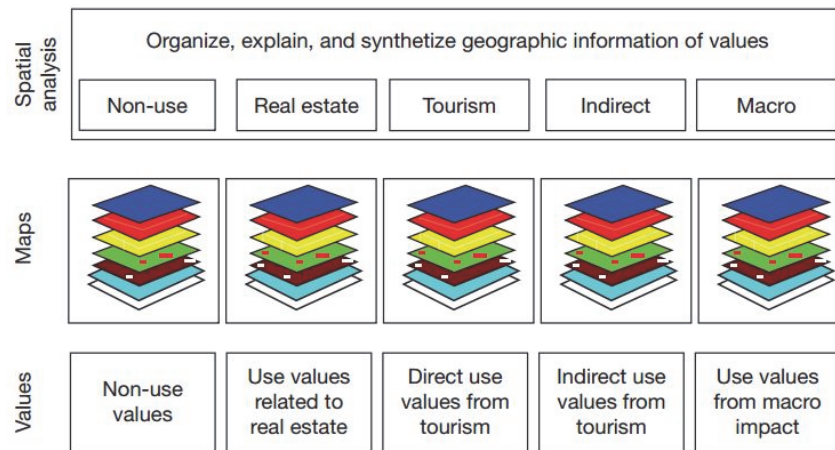


Figure no. 1: Geographic information about values

Source: Ost, 2012

The whole process of explaining and synthesizing geographical information in terms of economic values requires the identification of patterns, connections and the relationships between indicators from all value categories (see Figure no. 1), followed by a thorough modelling. (Ost, 2012).

Spatial analysis is used for solving complex problem and for better understanding of a phenomenon (where and what is occurring). Spatial analysis allows studying about the various characteristics of places and the relationships between them (Harder, 2015).

For a better understanding of the factors influencing the strategies of urban development through heritage, each spatial characteristic may be linked to supplementary information (i.e. when rendering the public transport system, a bus number may be connected with additional details regarding its schedule and the stations it stops; when presenting the cultural attractions of a city, a museum mapped may be linked to its program etc). This additional information has to be collected and compiled. Also, media information (images, video and audio files) has to be stored in the databases and to be linked to the spatial attributes it belongs to, as it may help understanding the phenomena without travelling at the very spot (i.e. when trying to understand why there is always traffic jam at some crossroads, a video file accurately displaying these crowded junctions may reveal the problem while analysing it inside the office). Another excellent reason for linking spatial data with media files describing the reality from the terrain is the possibility to further use the same GIS databases to create touristic interactive guides designed to enhance visiting satisfaction (Noguera et al., 2012)

The mapping of heritage tourism direct use value it based on several indicators. Even if admission fees for visiting heritage assets are the most accurate data for calculating heritage direct impact upon local urban economy, it is helpful to collect and analyze other indicators for a better understanding of the true values provided by tourism (Ost, 2012):

- Carrying capacity
- Access to the heritage
- Number of visitors
- Availability of audio-tours, smart phone applications, souvenir shops, parking, guided tours, public transportation
- Tourists behaviour
- Heritage related events organized in the area.

Mapping has the role to ensure a better overview of those indicators, the dynamic layers of the map revealing the generated impact of heritage tourism upon the city and helping thus to making the best strategic decisions for future urban development.

2. Methodology of research

Creating a model for urban development of Baia Mare city, based on the spatial analysis of heritage tourism impact, requires the following steps:

- Choosing the base map of the area and digitalizing it, taking into consideration the scale required for the following analyses
- Gathering all information of interest and digitalising it, by taking into consideration the resolution and the scale of the base map
- Geo-referencing the layers for the information collected - each layer corresponding to a category of information, by taking into account the coordinates system and the projection system used for the base map.

- Underlining patterns that would render the connections between the various layers of the map
- Analysing the patterns and modelling alternatives for urban development by modifying variables and predicting their behaviour.

In order to perform these steps, Ocad, Global Mapper, Mapinfo and ArcGIS software that allows data visualization, mapping, adding and editing were used. These combined used applications offered the tools and the support for designing the spatial analysis of Baia Mare heritage surroundings and for developing dynamic maps of the area. The obtained thematic maps are in close relationship with economics metrics as, through GIS, it is possible to monitor the heritage assets from an area, to assess their economic impact, to analyze the spatial distribution of various clusters, as well as to follow their evolution in time.

3. Results and discussions

Nowadays heritage assets of Baia Mare city are, in fact, important historical buildings that were once the core of the old city. The newer streets, bridges, parks and modern buildings were gradually built around this unchanged architectural core, the so called by the local citizens: “old centre”. As such, the maps presented in this case study focus on this part of the city containing the vast majority of the heritage assets which are in strong relationship with businesses (hotels, restaurants, souvenirs shops), with public transportation infrastructure and with public institutions. The map shows connections between heritage and the direct use values resulted from heritage tourism. For a better understanding of tourists’ behaviour in relation with heritage assets (see Figure 2), the map presents the most crowded walking routes (yellow colour was used for indicating these).

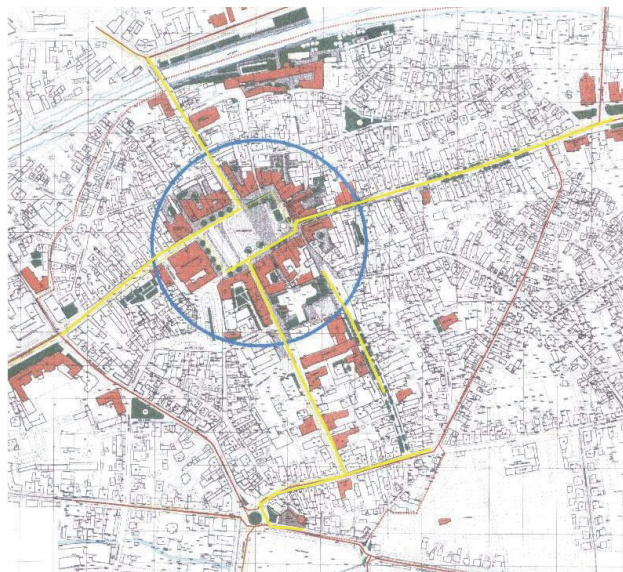


Figure no. 2: Map of the direct use values in relationship with tourists walking preferences in Baia Mare old centre

The following image of Baia Mare historical centre illustrate the potential of mapping direct and indirect use values generated by heritage tourism. Figure 3 A-B shows the heritage buildings, museums and churches (direct use value of heritage tourism) and the hotels, restaurants and shops (indirect use values).

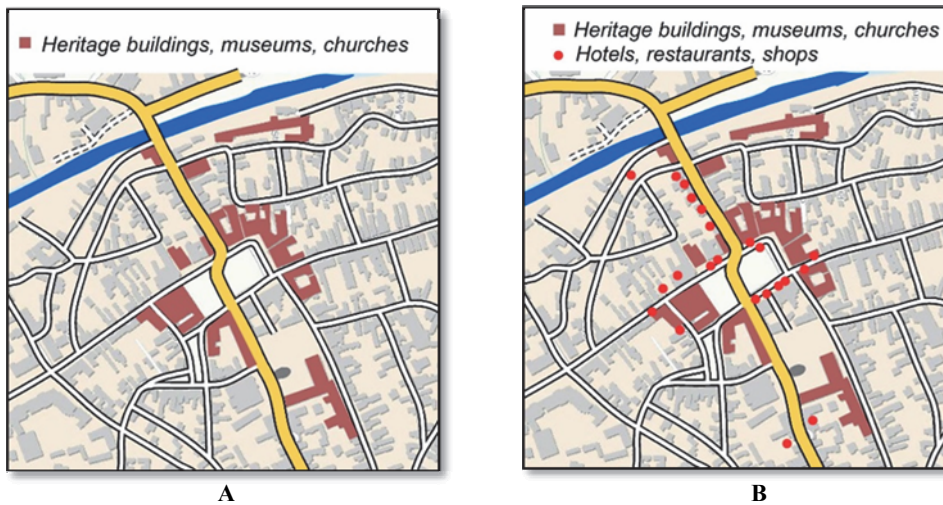


Figure no. 3 A-B: Historical downtown of Baia Mare - (A) Direct Use Values and (B) Indirect Use Values

As it can be noticed, main hotels, restaurants and souvenirs and handcrafting shops gravitate around the restored heritage assets of the old centre. Looking at the main walking routes chosen by the tourists, it can be remarked that they converge towards this historic area of the old city. However, by analysing the spatial distribution of heritage assets, alternative walking paths with additional touristic attractions could be suggested. Thus, the over-crowding would be diverted from the area, reducing the extra noise and traffic for the people inhabiting the old centre. In the same time, the alternative neighbour streets would create opportunities for other small businesses developments. One suggestion would that of a tour including the banks of the river and walks through the old streets of Baia Mare leading to the old heart of the city, instead of the main roads. In order to see if the model is feasible, further spatial analyses will have to be performed to test all social, economical and environmental parameters and to predict the modifications that would occur on medium-long term for the most relevant issues: business development, local population satisfaction or dissatisfaction, infrastructure and costs, environment and heritage protection.

Conclusions

Revitalizing the urban historical sites, improving infrastructure and cultural heritage protection ultimately contribute to business and economic development, to new employment places and to a general revival of the urban areas. Planning investments designed to support heritage tourism as part of the urban development strategy requires a thorough analysis of all aspects involved: social, economical and environmental. In terms of economic benefits, heritage tourism may be regarded through its two facets: direct-use

value and non-direct use value. These should be taken into consideration when redesigning the urban change based on heritage tourists flows.

As part of GIS applications, spatial analysis helps understanding heritage tourists, local citizens and businesses behavioural patterns. It helps modelling urban development, by accurately mapping these patterns, by indicating connections and by predicting outcomes induced by change. Mapping heritage economic values leads to a better understanding of an overall social and economical context, the case study about the centre of Romanian city - Baia Mare, presenting the basic elements of spatial analysis for urban development through heritage tourism.

References

- Alpopi, C., and Manole, C., 2013. Integrated Urban Regeneration–Solution for Cities Revitalize. *Procedia Economics and Finance*, 6, 178–185.
- Brueckner, M. and Tetiwat, O., 2008. Use of Geographical Information Systems for Thailand. *E-leader, Bangkok*.
- Childs, C., 2004. Interpolating surfaces in ArcGIS spatial analyst. *ArcUser, July-September*, 3235.
- Harder, C., 2015. *The ArcGIS Book: 10 Big Ideas about Applying Geography to Your World*. Esri Press.
- Noguera, J. M., Barranco, M. J., Segura, R. J., and Martinez, L., 2012. A mobile 3D-GIS hybrid recommender system for tourism. *Information Sciences*, 215, 37-52.
- Ost, C., 2012. Mapping Heritage Economics for Spatial Analysis in Historic City Cores. *The Economics of Uniqueness*, 245.
- Roberts, P., 2000. The evolution, definition and purpose of urban regeneration. *Urban regeneration: A handbook*, 9–36.
- Sabou, G.C., 2015. Valorificarea patrimoniului național prin activități turistice bazate pe aplicații ale Sistemului Informațional Geografic. Teză de doctorat. Academia de Studii Economice din București.
- Tsou, J. Y., Chao, M. C., Li, X., and Chen, K., 2014. Applying RS and GIS to Study the Impacts of Urban Regeneration on Thermal Environment in Built-up Areas: A Case Study of Kowloon, Hong Kong. In *Computing in Civil and Building Engineering*, pp. 593-600.