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DOES HUNTING TOURISM AFFECT THE ECONOMY?

A GUIDEBOOK FOR EVALUATING THE ECONOMIC IMPACT OF HUNTING TOURISM

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A GUIDEBOOK FOR EVALUATING THE ECONOMIC IMPACT OF HUNTING TOURISM

HUNTOUR
together through education

Co-funded by the
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and Wood Sciences

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More information about project HUNTOUR – Development of education in relation to the influence of ongoing climate change to hunting tourism is available at our websites https://huntour.czu.cz/en.

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ABOUT THIS GUIDEBOOK

OBJECTIVES

The main goal of this guidebook is to introduce students, along with various hunting tourism stakeholders, to evaluating the economic impact of hunting tourism at various regional levels. The book aims to provide the reader with basic knowledge concerning the evaluation methods in economics and consequently to provide support in understanding, evaluating, and interpreting the research that focuses on hunting tourism and how it affects the surrounding economy. In other words, the emphasis is on preparing the reader to understand the methods rather than actually implementing them in research. For anyone interested in conducting an impact assessment, the guidebook provides a general view of the methodological alternatives and suggests further reading materials. The book is designed so that the reader does not need prior studies in economics.

After reading this guidebook, the reader will be able to determine

- what the economic impact of hunting tourism means,
- which methods are suitable for assessing the impact of interest,
- what kinds of data, materials, and software are needed,
- what types of results can be produced and how they can be interpreted, and
- what assumptions are involved.

With this knowledge, the reader will be able to evaluate, for example, whether the used research method is suitable for the research question and materials or whether the method has been applied appropriately. Moreover, they will be able to decide how strong conclusions can be drawn based on the research findings and to what extent various studies are comparable.

OUTLINE

This guidebook is divided into five chapters. We begin with an introduction to hunting tourism (chapter 1) and continue with an introduction to economic impact evaluation (chapter 2). Chapter 3 offers a general description of the most common evaluation methods, which are illustrated with case studies. Chapter 4 widens the perspective to hunting tourism potential and sustainability, which are more thoroughly discussed in other outputs of the HUNTOUR project. Our final thoughts on the economic impact assessment of hunting tourism conclude this guidebook (chapter 5).

The chapters consist of

- chapter texts,
- text boxes,
- chapter summaries,
- key terms, and
- additional reading material suggestions.

The main content of this guidebook is included in the chapter texts. Text boxes summarize real-life studies that have applied the presented assessment methods. Text boxes also contain illustrations about the mathematics utilized in the methods or provide other additional reading material suggestions. Each chapter ends with a summary that covers the key elements of the chapter and can therefore be regarded as a stand-alone element. Key terms that are relevant to more than one assessment method are explained in chapter 2. Method-specific key terms are explained after each method descriptions (chapter 3). Additional reading materials include suggestions for further reading and data sources. Appendices in the final pages of this guidebook contain data and result examples. The extended summary, along with the national case studies presented in chapter 3, are translated into each author's native language, and the translations are included in the appendices.

FOR THE INSTRUCTOR

This guidebook is designed especially for students or those interested in commercial hunting tourism and the economic evaluation of hunting tourism impacts. The guidebook helps students comprehend the basics of economic evaluation to support decision-making and to understand the limitations and strengths of various calculation methods. This understanding will provide students with the skills to interpret economic figures related to hunting tourism and tourism in general. As the main target audience does not have a background in economics, we recommend emphasizing a broader understanding of the subject, creating classroom discussions, and exploring the existing case studies that utilize the presented evaluation methods in a hunting tourism setting that is familiar to the audience.

To use the material in teaching, it is necessary to consider country-specific distinctions. Significant differences occur across Europe in hunting management and, particularly, in the availability of input data. It is therefore necessary to not only understand the evaluation process and methods but also to be able to evaluate whether a method is applicable regarding data availability. For each method used, a case study clearly shows the specifics of the country in question, how the method can be applied, and what results it brings. For a better understanding, the case studies are also translated into the native languages and can thus be used in teaching alone or as part of the entire methodology.

The guidebook can be used at various depths depending on the scope of the course.

- If this subject is discussed during one lecture, it is enough to focus on the extended summary and cases exemplifying the most common evaluation methods.
- A short course could begin with chapters 1 and 2, continue with the summarizing bullet points and cases in the subsections of chapter 3, and end with chapters 3.8, 4, and 5. The chapter summaries provide a basic overview of chapter contents. Chapters 1, 2, and 4 describe hunting tourism and provide an overview of economic calculation methods and other important aspects relevant for developing hunting tourism. Chapter 3.8 summarizes and compares various evaluation methods.
- Chapters 3.1–3.7, on the other hand, provide more in-depth understanding of various calculation methods. Therefore, another option is to focus on certain evaluation methods, emphasizing the summaries and case studies in chapter 3.
- By reading the whole guidebook, the students have an extensive understanding on potential of different economic evaluation methods, taking especially in consideration the specific characteristics of hunting tourism.

CONTENTS

EXTENDED SUMMARY

OBJECTIVE

This guidebook is part of the HUNTOUR project, which aims to provide educational materials and hence support decision-making concerning the development of hunting tourism in European Union countries.

The main goal of this guidebook is to introduce students, along with various hunting tourism stakeholders, to evaluating the economic impact of hunting tourism at various regional levels. The guidebook aims to provide basic knowledge concerning the evaluation methods used in economics and to consequently provide support for understanding, evaluating, and interpreting the research that focuses on hunting tourism and its effects on the surrounding economy.

INTRODUCTION TO HUNTING TOURISM

Tourism is an important economic sector in most countries. Over the past decades, before the COVID-19 pandemic, tourism experienced continued expansion and diversification and thus became one of the largest and fastest-growing economic sectors in the world. Tourism generates millions of jobs and creates a high share of the gross domestic product of many countries. It affects not only the economy, which can be described with macroeconomic indicators, but also influences regional development, for example through improved infrastructure.

Hunting tourism is based on providing services to hunters who travel to destinations outside their everyday environment to hunt. Hunting is an important form of wildlife use in Europe along with being a popular form of nature recreation, a significant form of business, and an important part of cultural heritage. As a specific type of tourism, hunting tourism can be an additional source of income for peripheral or underdeveloped regions, where other forms of tourism are poorly developed. Hunting tourism can have a significantly positive effect on the local community. Numerous researchers have shown that hunting tourism has considerable economic impacts, both through direct spending by hunters and through indirect multiplier effects. Through income generation, job creation, general and specific taxes, and licence fees, hunting activities provide an economic contribution to local, regional, and national economies. In addition, it provides the majority of funding for wildlife management, thus contributing to rural development.

Wildlife is a natural resource, and species' populations stipulate the ecological limits for hunting tourism. Hunting tourism should not endanger or overexploit any species. In certain conditions, hunting tourism may also contribute to biodiversity conservation by limiting overgrown populations. In addition, the economic benefits incurred by rural societies through hunting tourism may also enhance conservation efforts, as game populations can be accorded economic value and hence game is not perceived as solely problematic.

INTRODUCTION TO ECONOMIC IMPACT EVALUATION

Hunting tourism influences the surrounding economy in many ways. For example, tourists' decisions affect the demand for local accommodation and catering services, hunting services and facilities, and the potential for using the area for other recreational activities. Demand changes for hunting tourism-related commodities are connected with the supply side: what goods and services are offered, how they are produced, how large investments are needed to meet the new demand, or how and when the goods and services are available for customers. Moreover, governments and other authorities influence and are influenced by both the hunting and the tourism sectors.

Economic changes can be identified at different levels. They can be recognized at the microeconomic level, which implies that hunting tourism affects households and firms. Examples of such effects include changes to household consumption decisions and companies' decisions of production levels. While these changes are relevant and interesting, economic impact analysis typically takes a wider perspective. The focus is not on a single economic actor but on group of actors who live and operate within the studied geographical region.

Hunting tourism may also cause macroeconomic effects, which suggests that the phenomenon can create economy-wide effects. Such impacts occur when, for example, the value of regional production or employment changes due to tourism activities. Some of the effects fall on actors who are closely involved with hunting tourism, such as companies providing services to hunters, or on the hunting tourists themselves. In addition, this initial impact may begin circulating in the economy, which signifies that the original event also affects other companies and people.

Economic effects can be classified based on how the effects are created. **Direct effects** often refer to the monetary spending of hunting tourists in a study region. As a result, local hunting service providers can hire new employees, for example, potentially raising the value of regional production. As the demand for tourism-related products increases, the companies providing these products will need to use more inputs such as sub-contracted catering services or fuels to provide transportation services. This increased demand for production inputs will create **indirect effects**. Direct and indirect effects will result in job creation and therefore in an increase in earned incomes. New employees spending these additional incomes to purchase regionally produced goods and services will further affect the region's economy. Such impacts are called **induced effects**. The **total impact** includes all three layers. When you compare the direct effect and the total impact, you can calculate the **multiplier effect**.

Why is evaluating the economic impact of hunting tourism interesting? Such an interest arises when tourism activities affect or may affect wider audiences that are making decisions about such activities. A region may have recognized that they have sufficient game populations and therefore wish to increase hunting tourist flows to their area. Before they invest in new tourism infrastructure, it is wise to quantify the economic potential of such growth. In this context, realizing the potential may impact company revenues, household wages, municipality tax incomes, and the regional employment rate, among other factors.

Another region may partake in a discussion concerning the division of hunting licences between local hunters and hunting tourists to meet the demands of hunting tourism. In both cases, knowledge of the economic impacts supports decision-making.

Decisions can be made by authorities who allocate permits and launch policies, companies who organize tourism products and invest in entrepreneurship, citizens who judge whether the economic benefits exceed the recognized harm, or some other actors. Each of these benefits from impact assessments that aim to provide an overview of the situation at hand.

ECONOMIC IMPACT EVALUATION METHODS AND MATERIALS

Variations in the evaluation methods enable answering different questions. The impact of hunting tourism or any other phenomenon on the national or regional economy can be evaluated with various methods. Each evaluation method has its strengths and choosing the correct method depends on the study question. Besides the proposed question, the availability of data and other resources may affect the method choice. In Table 1, we summarize certain common questions related to the economic impact of hunting tourism and suggest suitable methods for finding answers to these questions.

Table 1. Choosing a method – common research questions and result examples

Possible research questions	Suitable methods	Example of results
What is the **direct economic impact** of hunting tourism in a studied region?	Descriptive statistics Microeconomic optimization Nordic model	The impact on income and employment in the study region.
What is the **total economic impact** of hunting tourism (including the multiplier effect)?	Input-output models Computable general equilibrium models Nordic model	The impact on national or regional production, gross domestic product (GDP), employment, income etc.
What will be the **(future) economic impacts** of planned hunting tourism investments/policies/plans?	Cost-benefit analysis Input-output models Computable general equilibrium models Nordic model	Costs and benefits of the investment/policy/plan. The impact on national or regional production, GDP, employment, income etc.
What were **the (past) economic effects** of the studied change in hunting tourism?	Descriptive statistics Microeconomic optimization Nordic model Cost-benefit analysis Input-output models Computable general equilibrium models	Depending on the method, e.g. the impact on income and employment, costs and benefits of the change, the impact on national or regional production, GDP, employment etc.
What is the **value of the change** in e.g. ecosystem services that is not reflected in market prices?	Economic valuation methods	How much people are willing to pay for a specific change. How much one component or attribute contributes to the value.

METHOD CHARACTERISTICS

DESCRIPTIVE STATISTICS

- Official statistics and other existing databases provide open access materials that can be used to describe the economic situation and assess the economic effects.
- National and regional accounts offer an overview of economies.
- Tourism Satellite Accounts supplement these with tourism data.
- Statistical materials concentrating on hunting tourism may be available for research purposes from e.g. national authorities.
- The description, adaptation, and statistical analysis of existing or newly gathered data usually forms the starting point for impact assessments.

DIRECT ECONOMIC IMPACT – THE NORDIC MODEL

- The Nordic model represents an impact evaluation of tourism on a regional economy and calculates its economic impact based on tourist consumption.
- The Nordic model measures the economic and employment effects of tourism in specific spatial settings and has two approaches:
    - **The incomes model** analyses the economic effects of tourism on local companies by collecting data from tourism companies within the local tourism industry.
    - **The expenditure model** examines the money spent by tourists in a selected region and tourists' total expenditures for various tourism services and products.
- The databases are mainly compiled from interviews and surveys. Some data may be expensive and time-consuming to collect, the data may be of insufficient quality (depending e.g. on the willingness of tourism businesses to cooperate, unreliable data, and respondents' unreliable estimations of their spending)
- The results can be used as inputs in other studies, e.g. when using computable general equilibrium models, cost-benefit analysis, or input-output models.

MICROECONOMIC OPTIMIZATION

- Costs and revenues will change along with the scale of production.
- The aim of production optimization is to find the production level that results in the maximum profit.
- Empirical data can be used to reveal the production-profit function.
- The maximum of the profit function can be found with mathematical methods.

ECONOMIC MODELLING – INPUT-OUTPUT MODELS (I-O MODELS)

- The input-output model allows identifying interdependencies between industries in the economic system because the inputs of one industry are the outputs of another industry.
- These relationships ultimately lead to a balance between supply and demand in the economy.
- The input-output model covers the direct and indirect economic impacts of hunting tourism.
- Thanks to symmetric input-output tables (SIOT), it is possible to identify production multipliers and thus evaluate the multiplier effect within the industry.

ECONOMIC MODELLING – COMPUTABLE GENERAL EQUILIBRIUM MODELS (CGE MODELS)

- CGE models are used to evaluate the wider economic impact.
- Models describe economies as a whole, with equation systems that are derived from established economic theories.
- The modelling databases are mainly compiled from official statistics.
- CGE modelling results capture both direct and indirect effects.
- They focus on macro-level impacts, and commonly reported results include changes in gross domestic product (GDP), employment, income, and trade.

COST-BENEFIT ANALYSIS (CBA)

- CBA evaluates the monetized benefits and costs that the studied project, policy, or other phenomenon may cause or has caused to people who are identified to have standing in the analysis.
- Net present value (NPV) indicates the difference between costs and benefits that are discounted to present values.
- CBA results can be used e.g. to select which project or policies to adopt. The decision rule is then to choose the alternative that has (the largest) positive NPV.

OTHER METHODS

- The economic consequences of hunting tourism-related phenomena can be analysed with other methods as well.
- Multiplier models examine the extent of the role of tourism in economic development by revealing the indirect effect with a calculation of how much a certain quantity will increase (e.g. employment in tourism) if an input (usually the expenses of visitors) changes by an additional unit (e.g. 1 EUR).
- Economic valuation techniques enable recognizing monetary values that are not reflected in market values, such as the economic value of recreation.

FINAL THOUGHTS

Overall, economic evaluation methods can be helpful tools for assessing the indicative economic impacts of changes in economic activities or conditions. However, the assumptions and the quality of the used data influence result reliability, for instance. All methods have their advantages and disadvantages, as presented in Table 2.

Table 2. The advantages and disadvantages of methods evaluating economic effects.

Method	Advantages	Disadvantages
Descriptive statistics	+ exploit existing data + easy to use + wide variety of variables	- only considers direct impacts - only past impacts can be assessed
Microeconomic optimization	+ suitable for also making future predictions in addition to assessing current/past impacts + possibility to obtain analytical results with limited empirical data	- only considers direct impacts - includes several assumptions/simplifications
Nordic model	+ flexible + easily applicable	- mainly considers direct impacts - may face data challenges (e.g. costs and quality)
Input-output	+ possibility to assess the past as well as future impacts + also considers multiplier effects + also suitable for dynamic studies + several variables to report	- do not consider resource constraints - rather data-intensive - include several assumptions/simplifications
Computable general equilibrium models (CGE)	+ also considers multiplier effects + possibility to assess the past as well as future impacts + wide variety of variables + also suitable for dynamic studies	- data-intensive - require extensive knowledge (incl. programming) - require software licences - include several assumptions/simplifications
Cost-benefit analysis (CBA)	+ possibility to assess the past as well as future projects + possibility to rank options with clear rules	- some benefits and costs difficult to value - may exclude some costs or benefits
Multiplier models	+ considers indirect effects	- do not consider resource constraints - include several assumptions/simplifications
Valuation	+ enables recognizing monetary values that are not reflected in market values	- does not assess the wider economic impact of the phenomenon

An impact assessment can offer decision makers valuable insights into the surrounding economy: how various actors and activities are connected, and what the wider consequences of individual changes could be. This understanding provides a good basis for making informed decisions. While recognizing the economic impact is important, other aspects should be acknowledged as well. The social, cultural, and environmental impacts caused by hunting tourism activities are essential viewpoints in decision-making processes.

Economic impact evaluations focus on the larger picture. The wider impact may be rather small in certain cases, but the impact on individual economic actors can be significant. Similarly, the general impact can be positive, but some actors may face economic losses due to the considered change. It is therefore good to reflect whether the studied economic change can be judged as a fair development. Another noteworthy point is that while indicators, such as GDP, may reveal interesting and important messages, they are not perfect indicators. These indicators dismiss important aspects, which can severely limit their ability to describe the effects on human welfare, for example. All in all, economic impact evaluations can support decision makers, but it is wise to remember the limitations of each method and study.

FURTHER READING MATERIALS

Finally, we would like to suggest some reading materials for learning more about economic evaluation. First, we recommend perusing our guidebook, which summarizes key aspects of common evaluation methods, focusing on the hunting tourism context. We also suggest familiarizing yourself with our case studies, which exemplify the application of certain methods in the hunting tourism setting. The following books may also be useful for diving deeper into some of these methods.

Microeconomics

Putman, R. (2012). *Scoping the economic benefits and costs of wild deer and their management in Scotland.* Scottish Natural Heritage Commissioned Report No. 526.

Input-output models

Tan, R.R., Aviso, K.B., Promentilla, M.A.B., Yu, K.D.S. & Santos, J.R. (2019). *Input-Output Models for Sustainable Industrial Systems: Implementation Using LINGO*. Lecture Notes in Management and Industrial Engineering. Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-13-1873-3

Computable general equilibrium models

Burfisher, M. (2017). *Introduction to Computable General Equilibrium Models*. 2nd edition. Cambridge University Press. https://doi.org/10.1017/9781316450741

1 INTRODUCTION TO HUNTING TOURISM

Tourism is one of the important economic sectors in most countries. Over the past decades, before the COVID-19 pandemic, tourism experienced continued expansion and diversification and thus became one of the largest and fastest-growing economic sectors in the world. Tourism generates millions of jobs, and in many countries creates a high share of the gross domestic product.

While the importance of tourism has continued to grow nationally and internationally, the need for research and development initiatives in the tourism sector has steadily increased.

TEXT BOX 1. EXTRA: WORLD TOURISM IN 2019

According to statistics from the World Tourism Organization (UNWTO, 2020), international tourist arrivals in 2019 exceeded 1.460 billion (10^9), a year-on-year increase of 4%. The global tourism revenue is USD 1.481 trillion (10^12). Overall, tourism employs one in ten people and accounts for 10% of world GDP. The most visited destinations are France (89 million arrivals), Spain (84 million arrivals), and the USA (79 million arrivals). The biggest source markets, i.e. the countries that send tourists, are China (USD 255 billion), the USA (USD 152 billion), and Germany (USD 93 billion).

CHARACTERISTICS OF TOURISM SECTOR

A feature of tourism is that it can create economic opportunities without major investments and thus brings significant added value. Effects can be seen not only in the economy through macroeconomic indicators but also in the development of areas that are involved in tourism, for example in the form of improved infrastructure.

Due to tourism being a multisectoral phenomenon, it cannot be unequivocally defined as a business sector, as it extends to various economic sectors. During a visit, a tourist uses several services, some of which are offered by tourism companies (such as accommodation, catering, guide services), but tourists can also make purchases at local grocery shops, buy gasoline from local gas stations etc. Thus, forming a uniform definition that accurately captures all the characteristics of tourism and its economic implications is complicated.

Tourism also incorporates other special characteristics. Tourism products are intangible in nature and cannot be stored. The variation in tourism products may be wide, and the human factor often plays a great importance in the production process. Supply and demand in the tourism market can be affected by non-economic elements (usually natural factors). In addition, tourism is international in character and has high dependence on the attractions of the destination.

Types of tourism are determined according to the implementation method and other specifics. Domestic tourism is referred to as tourism where trips are made by residents within a given nation without crossing borders. Foreign tourism includes trips where the

borders of one or more nations are crossed. Tourism typology divides tourism into various forms, which are categorized according to the main motivation for participating in tourism. We distinguish between recreational, cultural, urban, rural, mountain, shopping tourism, and many others. Further division into types of tourism depends on other factors, such as organization level (organized, individual tourism), length of stay (long-term vs. short-term tourism), or by tourist origin (inbound, outbound tourism). By recognizing the various types of tourism and service characteristics, it is possible to identify customer segments and to adapt promotion and communication to better suit each target group.

HUNTING TOURISM

Hunting is an important form of wildlife use in Europe along with being a popular form of nature recreation, a significant form of business, and an important part of cultural heritage. Hunting tourism is based on providing services to hunters who travel to destinations outside their everyday environment to hunt. Hunting tourism can be domestic or foreign tourism, with hunting being the main purpose of the trip. Trophy hunting is a significant motivator for hunting tourism abroad, and participants are willing to pay significant amounts of money to participate.

Hunting tourism is an outdoor recreation-oriented activity. Hunting tourism is considered a consumptive form of tourism in relation to game resources. Researchers are not in agreement as to whether or not hunting tourism should be included under ecotourism. Various definitions of ecotourism exist, and respecting nature is a central aspect of some definitions. Hunting tourism fulfils these criteria. On the other hand, as hunting tourism is consumptive in nature and involves killing animals, some researchers do not see it as a form of ecotourism.

The European Federation for Hunting and Conservation (FACE) considers hunting tourism to be a special branch of ecotourism, with a strong emphasis on sustainability. This includes strict compliance with international rules connected with nature conservation, particularly the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and other legislative instruments. Hunting tourism may also be considered a special form of selective sustainable tourism, which creates a synergistic effect between eco-, rural, and sports tourism. This approach to the definition was developed because hunters not only hunt during their travels, but also spend time in nature for recreational reasons while concurrently watching and managing game.

Europe has nearly 7 million European hunters who can potentially participate in hunting tourism. As a specific form of tourism, hunting tourism can be a significant additional income source for peripheral or underdeveloped regions, where other forms of tourism are poorly developed. Hunting tourism can have a significantly positive effect on the local community. Numerous researchers have shown that hunting tourism has considerable economic impacts, both through direct spending by hunters and through indirect multiplier effects. Through income generation, job creation, general and specific taxes, and licence fees, hunting activities provide an economic contribution to local, regional, and national economies and form the majority of wildlife management funding, thus contributing to rural development.

WILDLIFE POPULATIONS AND HUNTING PRACTICES AFFECT HUNTING TOURISM OPPORTUNITIES

Wildlife is a living natural heritage, and their populations stipulate the ecological limits for hunting tourism. Hunting tourism should not endanger or overexploit a species. However, in certain conditions, hunting tourism can also contribute to biodiversity conservation by limiting overgrown populations. In addition, the economic benefits incurred by rural societies through hunting tourism may also enhance conservation efforts because game populations can be accorded economic value and hence game is not perceived as solely problematic.

Game hunting can be performed unaccompanied, when a hunter is waiting for game on a hunting seat or stalking the game. The hunter goes hunting either alone or with a guide who assesses whether the game is suitable for shooting. The second option is a driven hunt, which is organized for a group of people (usually 10–100 people), where shooters are deployed in predetermined places and the game is driven to the shooter by beaters and dogs that pass through the area.

Hunting can take place in the wild or in a fenced area, i.e. a game preserve or pheasantry - a place where pheasants are intensively bred for hunting.

Fee hunters hunt trophy game, i.e. males, as well as females and young game. Trophy game fees are usually significantly higher in countries where trophy hunting is most common. The price is determined for trophy game based on the achieved point value determined by the CIC trophy evaluation system[1].

The main factors impacting how hunting tourists select their destinations include the attractiveness of the destination in terms of hunting opportunities, the diversity of hunting facilities and the quality of services provided by the organizer. A hunting destination suitable for hunting tourism activities, on the other hand, is determined typically by location, its safety, number of hunted species, legislative regulations (i.e. what forms of hunting are legal and when) along with how hunting tourism is accepted by the local society and whether the destination offers quality services such as accommodation, catering, and other entertainment.

HUNTING CULTURES VARY ACROSS EUROPE

Game hunting is associated with long traditions, and the ceremonies that accompany hunting are passed down from generation to generation. Typical traditions include a special hunting language and different ways of respecting alive game and the hunted bag. Customs differ across Europe: more attention is paid to traditions in some places while gradually losing their significance in others.

Thus, there is a strong historical and cultural aspect in how hunting has developed in different parts of Europe. Also hunting legislation systems in European nations are based on varying concepts. Hunting is perceived differently by various nations, and approaches to exercising hunting legislation are also slightly different. In general, these systems can be divided into four groups:

[1] The CIC Trophy Evaluation System (TES) is an international system developed for monitoring and comparing hunting trophies from various species with species-specific, unified measurement parameters. See more at: http://www.cic-wildlife.org/trophy-evaluation/about-the-tes/

1. **Central European hunting ground system**

   (Belgium, Czech Republic, Luxembourg, Hungary, Germany, Netherlands, Poland, Austria, Slovakia, Slovenia, Serbia)

   Hunting has a long cultural role within this hunting system. Game numbers are relatively high and hunting often aims to control overgrown populations. Hunting is regulated by the state. The professional competence of hunters and game management are emphasized greatly. Hunting grounds are created from hunting areas, and they are typically professionally managed by a gamekeeper and have individual game management plans. Trophies and trophy values play a large role in hunting. Hunting events often also include ceremonial elements related to, for example, respecting the hunting bag. These countries probably have the most developed hunting tourism systems within the European Union.

2. **Scandinavian hunting system**

   (Finland, Denmark, Baltic States, Sweden, Norway)

   For these countries, where hunting is considered the "fruit of nature", hunting rights are often connected with land ownership, and hunting also requires a licence from game/hunting authorities. Although a licence often provides the possibility to carry out hunting activities within the whole state or part of it, a permit from the landowner is also typically needed. A hunter pays the public authority or state a fee for a hunting licence. The trophy, as understood by the Central European system, is not such a crucial component, whereas the hunting activity itself is especially important. Hunting ceremonies play a smaller role than in Central Europe, and hunting is typically an activity for all social classes.

3. **Anglo-Saxon hunting system**

   (Ireland, United Kingdom)

   Hunting in these countries is more related to the sporting aspect. Trophies and how the hunting season is determined also differ from the other hunting systems. Hunting is primarily associated with landownership, so anyone with a hunting licence can hunt on their land. Legal regulation is thus mainly devoted to determining which species can be hunted and how and to the hunting season.

4. **Latin hunting system**

   (France, Italy, Cyprus, Malta, Portugal, Greece, Spain)

   The social factor is an important aspect of hunting in these countries. The primary goal is to spend time in nature and to experience social entertainment. Apart from the South Tyrol region and France, the land is not distributed to hunting grounds in this system, but hunting is carried out with licences. Local citizens are strongly favoured in the licence rates. Managing for and protecting game is very rare in these countries.

Given the different understandings of hunting around Europe, the European Union is seeking to establish a framework, particularly regarding the protection and management of game, that presents the tasks that individual states must meet. Its main goal is to preserve biodiversity, i.e. guarantee the diversity of species, of both flora and fauna, in our environment. Thus, maintaining biodiversity does not only focus on endangered species, as is often perceived by the public.

SEVERAL STAKEHOLDERS IMPACT HUNTING TOURISM

Several stakeholders act within the hunting tourism sector. The most obvious ones are hunting tourism organisers, which can be state forest enterprises, private hunting grounds, or even hunting clubs. All of these can provide hunting possibilities to hunting tourists; however, large differences exist between the providers in terms of how professionally hunting tourism activities are carried out. Some providers (mostly the state or private companies) offer professional hunting with luxury accommodation on the hunting ground and all equipment, and hunting tourists are assigned a professional guide. On the other hand, hunting clubs that provide hunting tourism activities as their own leisure activity can only provide a hunting licence for their grounds, but their prices reflect this.

Other important stakeholders are hunting travel agencies, which organize hunting tourism packages including accommodation and catering facilities in the area, and taxidermy companies that treat and modify trophies. Travel agencies also often link foreign demand with supply. However, it is worthwhile recognizing that important stakeholders of hunting tourism are not always directly linked to the activity. For example, local residents' opinions and approaches to hunting and to other land uses in the area in general must be considered because these may be a deciding factor in whether the development of hunting tourism is supported in the area or not.

2 INTRODUCTION TO ECONOMIC IMPACT EVALUATION

HUNTING TOURISM CAN CAUSE VARIOUS ECONOMIC EFFECTS

Hunting tourism can influence the surrounding economy in many ways. For example, tourists' decisions affect the demand for local accommodation and catering services, hunting services and equipment, and the opportunities of using the same area for other recreational activities. Demand changes for hunting tourism-related commodities are connected with the supply side: what goods and services are offered, how they are produced, how large investments are needed to meet the new demand, or how and when the goods and services are available for customers. Moreover, governments and other authorities influence and are influenced by both the hunting and the tourism sectors.

Economic changes can be identified at different levels. They can be recognized at the microeconomic level, which implies that hunting tourism affects households and firms. Examples of such effects include changes in household consumption decisions and company decisions of production levels. In addition, hunting tourism may cause macroeconomic effects, which suggests that hunting tourism can create economy-wide effects. Such impacts occur when the value of regional production or employment changes due to tourism activities, for example. Some of the effects fall on actors closely involved with hunting tourism, such as companies providing services for hunters, or on the hunting tourists themselves. In addition, this initial impact may begin to circulate in the economy, which signifies that the original event also affects other companies and people.

Tourism economics studies tourism by utilizing established economic theories and methods. The same economic analysis tools can be used to study other subjects as well. Economic theories and methods cover a wide range of economic phenomena. In this guidebook, we concentrate on tools that may be helpful when the interest is on evaluating the economic impact that tourism, and more precisely hunting tourism, can cause.

ECONOMIC IMPACT EVALUATION SUPPORTS DECISION-MAKING

Why is it interesting to evaluate the economic impact of hunting tourism? This interest arises when tourism activities affect or may affect wider audiences that are making decisions concerning these activities. Perhaps a region has sufficient game populations and has recognized that they could increase their hunting tourist flows. Quantifying the economic potential of such growth would be wise before investing in new tourism infrastructure. In this context, realizing the potential may impact company revenues, household wages, municipality tax incomes, and the regional employment rate among other factors. Another region may be having an ongoing debate about the division of hunting licences between local and hunting tourists to meet the demands of hunting tourism. In both cases, knowledge concerning the economic impacts supports decision-making.

Decisions can be made by authorities who allocate permits and launch policies, companies who organize tourism products, citizens who judge whether the economic benefits exceed the recognized harm, or other actors. Each of these actors benefits from impact assessments that aim to provide an overview of the situation at hand.

EVALUATION FOCUSES ON THE WIDER PICTURE USING MULTIPLE INDICATORS

As the previous examples illustrate, hunting tourism can affect the economic situation of single companies and households. While these changes are relevant and interesting, an economic impact analysis typically takes a wider perspective. The focus is not on a single economic actor but on a group of actors who live and operate within the studied geographical region. Nonetheless, it is important to recognize the changes that the individual companies and people face, to capture the total change and understand the nuances.

Economic impact can be expressed using multiple indicators. In the following sections, we will briefly explain the indicators that are usually used to describe economy-wide impacts. Our purpose is to introduce the reader to key concepts. If these seem difficult to understand at this point, do not worry because they will become clearer as the guidebook progresses. We recommend returning to these sections after familiarizing yourself with a few evaluation methods and especially with the exemplifying case studies.

Output value refers to the monetary value of products produced in a defined region, sector, and time period. This value can be considered a close equivalent to the sum of company revenues. Companies use inputs to create revenues. At the aggregate level, **intermediate consumption** denotes the value of goods and services that are used in the production process, excluding fixed assets such as buildings and machinery. **Gross value added** is calculated by deducting the intermediate consumption value from the output value. Hence, gross value added expresses the new value generated by the production process. The sum of value added generated in various sectors and within one country (plus taxes and less subsidies on products) is called **gross domestic product** (GDP). GDP indicates the market value of all final goods and services that are produced in the defined country and time period. A similar indicator can be calculated at the regional level.

GDP can also be determined in another manner. As production creates incomes and income is spent, GDP can be expressed as the sum of four spending types. Household spending is called **consumption**. **Investments** include spending on equipment, inventories, and other goods that will be used in future production processes along with spending on household housing. **Government purchases** cover spending on goods and services by governments at various levels (e.g. at local or national levels), for example for providing healthcare or education. Governments also spend money on transfer payments, such as pensions and social security benefits, but such payments are not part of government purchases. **Net exports** are the fourth spending component, which are calculated by subtracting imports from exports.

Production processes require labour, and **employment** impact is another interesting aspect to evaluate. Assessment results can reveal how the studied event is reflected in the number of jobs. Method dependent, the results may express the general change (including full-time and part-time employment) or the change in person-years (i.e. the annual labour input of one full-time employee). The employment effect can be communicated as a change in **employment rate**. This ratio indicates the share of employed persons compared with the same-aged population. The reference population can be determined differently, for example due to varying labour force definitions. The employment impact is also

reflected in the **earned income** from work. Changes in working opportunities, among other factors, may impact the resident **population**.

In addition to the above-mentioned common indicators, economic impact can be analysed with various **productivity** indicators, for example, which are calculated as the ratio between output and input or with measures on **productive capital stock,** which includes the buildings, equipment, and R&D required in production processes. As all these indicators imply, the impact assessments try to convey a broader overview of the economic implications.

IMPACTS HAVE MULTIPLE LAYERS

Economic effects can be classified based on how the effects are created. To illustrate these layers, we will now imagine a region that is planning on increasing its tourist flows. When new tourists visit the region, they will buy various goods and services: hunting services, accommodation, food, transportation, souvenirs, licences, entertainment. This consumption will create **direct effects**. In other words, direct effects often refer to the spending of hunting tourists in the study region. As a result, local hunting service providers may, for example, hire new employees and the value of regional production may rise.

Direct effects are not the only effects caused by the increased spending of tourists. As the demand for tourism-related products increases, companies providing these products will need to increase their inputs, for example sub-contracted catering services or fuels to provide transportation services. This increased demand for production inputs will create **indirect effects**. The production of these inputs will grow because of this new demand, affecting regional employment among other factors.

Direct and indirect effects will result in new job creation and therefore in an increase in earned incomes. When the new employees spend these additional incomes to purchase regionally produced goods and services, the region's economy will be further affected. Such an impact is called an **induced effect**.

The **total impact** includes all three effects. Our example considered an increase in tourist spending. In this case example, the total regional employment impact covers the new employees hired by a local restaurant to serve the new tourists, the increase in working hours at a local bakery that supplies baked products to the restaurant, along with the additional working hours at a local grocery store serving the new restaurant and bakery employees. As impact assessments aim to provide a bigger picture, it is important to consider all the changes that the new tourists may cause. For instance, if the increase in one hunting tourism destination causes a decrease in another destination within the study region, the assessment should cover both changes.

When you compare the direct effect and the total impact, you can calculate the **multiplier effect**. For example, if the direct employment effect is 10 person-years and the total employment impact is 15 person-years, the multiplier is 1.5 (i.e. 15/10). This multiplier suggests that each new full-time job in directly affected companies creates 0.5 jobs elsewhere in the economy through indirect and induced effects. Many studies use a multiplier calculated in another comparable study as a fixed multiplier to estimate the total economic impact based on information of the direct effects.

ECONOMIC IMPACT EVALUATION PROVIDES ONE VIEWPOINT

An economic analysis can be **positive** or **normative** by nature. A positive economic analysis focuses on describing and explaining the studied subject. Normative economics is prescriptive, involves value judgements, and suggests future actions. For instance, the statement 'The studied hunting tourism investment has created 10 new jobs' is positive, while the statement 'The studied hunting tourism investment should be implemented (as it would create 10 new jobs)' is normative. For example, a cost-benefit analysis is normative, as its results suggest how resources should be allocated for efficient use. In other words, the analysis does not show how the resources are actually allocated. As another example, a computable general equilibrium (CGE) analysis is positive, as it explains the economic implications, and the CGE results can be used as a basis for normative statements. CGE models additionally include normative assumptions on human welfare.

Impact assessments can offer decision makers valuable insights into the surrounding economy: how various actors and activities are connected and what wider consequences individual changes could bring about. This understanding provides a good basis for making informed decisions. While recognizing that economic impact is important, other aspects should also be acknowledged. Social, cultural, and environmental impacts caused by hunting tourism activities are essential viewpoints in decision-making processes. For example, game populations stipulate the possibilities for hunting tourism activities and their potential extensions. Also, the opinions of local people and other stakeholders need to be considered. Further, economic impact evaluations are anthropocentric, suggesting that other type of assessments may be required.

Economic impact evaluations focus on the bigger picture. The wider impact may be rather small in some cases, but the impact on individual economic actors can be significant. Similarly, a general impact can be positive, but some actors may face economic losses due to the considered change. Therefore, it is good to reflect whether the studied economic change can be considered a fair development. Another noteworthy point is that while indicators, such as GDP, may reveal interesting and important messages, they are not perfect indicators. These indicators dismiss certain important aspects, which may severely limit their ability to describe the effects on human welfare, for example. Yet another notion is that impact assessments may rely on economic theories that have been challenged by other economic theories. For instance, CGE models describe the behaviour of economic actors with traditional microeconomic theories, but behavioural economics has proposed several alternative descriptions. All in all, economic impact evaluations can support decision makers, but remembering the limitations of each method and study is important.

SUMMARY

- The development of hunting tourism activities is reflected in the economic indicators that describe a study region.
- Impact assessments focus on the wider picture, using result variables such as GDP and employment.
- An impact has multiple layers: the total economic impact covers direct, indirect, and induced effects.
- The purpose of an impact assessment is to support informed decision-making.
- Each evaluation method and study has its strengths and limitations, which should be remembered while interpreting assessment results.

KEY WORDS

Direct effect. Results from the immediate change under study.

Economic potential. Describes the ability of e.g. a region or sector to develop, grow, and create new value.

Economy. Covers all the economic activities (i.e. transactions; production, distribution, trade, and consumption of goods and services) within a defined country or region.

Indirect effect. Results from a direct effect, as companies facing the direct effect use inputs in their production processes.

Induced effect. Results from household spending because direct and direct effects change household incomes.

Multiplier effect. Results from the direct effect; includes indirect and induced effects. Multipliers denote the ratio between total impact and direct effect.

Total economic impact. Includes direct, indirect, and induced effects.

Value added (gross). The value that producers create.

3 ECONOMIC IMPACT EVALUATION METHODS AND MATERIALS

The impact of hunting tourism or any other phenomenon on the national or regional economy can be evaluated with various methods. Variations in these methods enable answering diverse questions. Each evaluation method has its strengths, and choosing the correct method depends on the study question. Besides the proposed question, the availability of data and other resources may also affect method choice.

Each evaluation method aims to produce results that foster understanding of the studied phenomenon and support the decision-making of the studied subject. Understanding the general differences between evaluation methods provides a solid basis for interpreting evaluation results. Such understanding also helps to compare studies that have used different methods.

The distinctions between methods arise from various sources. These aspects should be considered when comparing methods and analysing evaluation studies. The presented aspects can differentiate method groups, but even a single method can express significant methodological differences between model versions.

ASPECTS CAUSING DIFFERENTIATION BETWEEN METHODS

'BEFORE' AND 'AFTER' EVALUATIONS. Evaluation methods can be used to assess the impact of a phenomenon that has already occurred (*ex post* studies). Such studies help to understand which kinds of projects are beneficial, for example. The other option is to conduct an evaluation before the studied project or policy has been implemented (*ex ante* studies). Most impact evaluation methods can be used for both purposes. It is also possible to conduct evaluations during implementation (*in medias res* studies), to decide whether continuing the process is justified. In addition, *ex ante* and *ex post* assessments can be compared to learn from the process.

TIME. Evaluation methods may differ in how they deal with time. For some analyses, the economic costs and benefits that occur at different points in time can be modified to be comparable by discounting and by obtaining present values. Static and dynamic analysis is another distinction regarding time. Static economic modelling studies do not incorporate a time dimension, whereas dynamic studies include time in the analysis. The results of static evaluations describe the ultimate impact of the studied phenomenon. For example, a static economic model enables comparing the states before and after the introduction of a new policy, but it does not describe the adjustment path between these states. In contrast, dynamic modelling results describe the economic development path.

DIRECT AND INDIRECT IMPACT. Some methods only capture the direct economic impact, while others are also able to consider the indirect effects. In some cases, the researcher has decided how widely the indirect economic effects are assessed. The methods used to evaluate an indirect impact may vary in how they handle economic constraints such as the available labour force. The evaluation of economic consequences can focus on clearly

measurable economic effects, but some methods allow changes in ecosystem services, for example.

RESULT VARIABLES. The studied question along with the method used determine the reported result variables. Economic consequences can be expressed, for example, as monetary costs or benefits to those who have a standing, or as a change in GDP or employment. The analysis may concentrate on a more limited unit that faces the impact (e.g. a community) or it can be more global in nature (e.g. countries). The purpose of an impact evaluation is usually to provide insights concerning the approximate scale of an impact and not to express exact impact figures. Depending on the method — as well as on the research question and result variable — this range can be expressed differently.

MATERIALS. The evaluation methods differ in their data requirements. Existing open statistics or previously collected data are sufficient for certain methods. Contrastingly, some methods require extensive databases collected from statistics, literature, and other data sources. The researcher often needs to collect new data, for example through a survey distributed to tourists. The used materials are reflected in the results: the quality of the evaluation process output is no better than the quality of the input materials.

APPLICATION. Various programmes are used in impact assessments. The application is usually a spreadsheet, a programme for statistical analysis, or a mathematical modelling system. Some applications are free to use, but more advanced software require licences.

ASSUMPTIONS. All economic models entail generalizations and various assumptions. Paying attention to these is crucial while interpreting the results. The most important assumptions regarding each studied case should be clearly expressed. In addition to the explicitly mentioned assumptions, the evaluation may include assumptions that are typical for the used method and are therefore not mentioned.

SEVERAL METHODS – HOW TO CHOOSE?

Several optional methods can be used in the assessments. The most common methods are presented in the subsequent chapters. Method choice depends on the research question and on the available research resources, such as the accessible data. Table 1 summarizes common questions related to the economic impact of hunting tourism and suggested suitable methods for finding answers. The table also includes examples of the result variables that the suggested methods often use. In addition to the proposed research questions and result variables, the evaluation may also cover other questions and results. If the reader only wants to concentrate on methods suitable to their specific question, the table will help in navigating through the following chapters. The presented methods are further examined and compared in subsequent chapters.

Table 1. Choosing a method – common research questions and result examples

Possible research questions	Suitable methods	Example of results
What is the **direct economic impact** of hunting tourism in the studied region?	Descriptive statistics Microeconomic optimization Nordic model	The impact on income and employment in the study region.
What is the **total economic impact** of hunting tourism (including the multiplier effect)?	Input-output models Computable general equilibrium models (Nordic model)	The impact on national or regional production, GDP, employment, income etc.
What will be the **(future) economic impacts** of planned hunting tourism investments/ policies/plans?	Cost-benefit analysis Input-output models Computable general equilibrium models Nordic model	Costs and benefits of the investment/policy/plan. The impact on national or regional production, GDP, employment, income etc.
What were **the (past) economic effects** of the studied change in hunting tourism?	Descriptive statistics Microeconomic optimization Nordic model Cost-benefit analysis Input-output models Computable general equilibrium models	Depending on the method, e.g. the impact on income and employment, costs and benefits of the change, the impact on national or regional production, GDP, employment etc.
What is the **value of the change** in e.g. ecosystem services that is not reflected in market prices?	Economic valuation methods	How much people are willing to pay for a change. How much one component or attribute contributes to the value.

Economic impact assessments are often conducted with input-output (I-O) models and computable general equilibrium (CGE) models. The Nordic model is another common option for the tourism-related assessments. The Nordic model mainly focuses on direct economic effects, while the I-O and CGE models also consider indirect and induced effects. Applying the Nordic model often requires survey data. Similar data can also be used in I-O and CGE modelling, which otherwise rely heavily on statistics.

In this guidebook, we also introduce you to other economics tools that can be used to analyse economic effects. Understanding the basics of these methods additionally supports understanding the I-O, CGE, and Nordic models along with the differences between the methods. We will begin with an introduction to statistics, especially to tourism satellite accounts. Official statistics provide interesting open access data. The statistics also form the basis for I-O and CGE modelling. The chapter on microeconomic optimization presents an example of how to apply economics ground rules in hunting tourism analyses. The same rules and other micro- and macroeconomic theories are applied, for example in CGE modelling. Cost-benefit analysis (CBA) is a common method used to evaluate policies and projects. Economic valuation methods are used to capture economic effects that are not reflected in market prices, such as the monetary value of recreation. The CBA and valuation materials and results are useful on their own, but they can also be utilized in wider impact assessments.

In the following chapters, the reader will find a description of the most common methods used to evaluate the economic effects. The descriptions provide insights concerning the important aspects discussed in this chapter. Each method is illustrated with a case study that focuses on some question related to hunting tourism. Next, the presented methods are compared. Finally, this chapter discusses data requirements and possibilities for considering various regional levels in the economic impact evaluation.

3.1 DESCRIPTIVE STATISTICS

The economic impact assessment begins with forming the research question and reflecting on what data and method are needed and available for answering the question. Before collecting new data, it is worthwhile to familiarize yourself with existing statistics on the subject. Official statistics provide a wide range of accessible information, for example in databases published by Eurostat. Various authorities may additionally have collected interesting data accessible on demand.

NATIONAL ACCOUNTS PROVIDE AN OVERVIEW OF THE ECONOMY

National accounts offer a comprehensive picture of the economic activities in each country. Therefore, they are a solid basis for economic impact analysis. The accounts are collected according to European and worldwide standards, making them comparable between countries. Similar statistics are also compiled at the regional level, using regional definitions explained in chapter 3.10.

National accounts include several separate statistics about economic activities and transactions between various economic actors. For example, they describe production processes in each economic sector, expressing the monetary value of the needed inputs and produced outputs. Moreover, they reveal which actors purchase the produced goods and services. Hence, the accounts include information concerning the income and spending of the main economic actors, such as household earnings and consumption or government taxes and subsidies. In addition, they offer information on employment, productivity, foreign trade, and capital stock among other indicators.

TEXT BOX 2. EXTRA: NATIONAL ACCOUNTS

National accounts include tables describing national and regional economies. For instance, they cover the following tables that are available from Eurostat databases and databases administered by national statistical offices.

ANNUAL AND QUARTERLY NATIONAL ACCOUNTS

- Main GDP aggregates, such as final consumption, capital formation, exports, imports, employee compensation, taxes, and subsidies
- Provide an overview of the economy

SECTOR ACCOUNTS

- Gross value added by industry
- Employment by industry
- Support understanding of how economies function

SUPPLY, USE, AND INPUT-OUTPUT TABLES

- The production of various commodity groups by each industry
- The imports of various commodity groups
- The intermediate use of various commodity groups in production processes by each industry
- The final use (e.g. by households and governments) and exports of various commodity groups
- Wages and operating surplus by each industry
- Describe the interdependencies between economic actors
- Portray the structural changes in economies

TOURISM SATELLITE ACCOUNTS SUPPLEMENT THE PICTURE ON TOURISM

While national and regional accounts offer sector-specific information on economic activities, the challenge in the tourism context is that tourism does not involve only a single sector. On the contrary, tourism-related goods and services are produced in multiple sectors such as accommodation, food service activities, transportation, and recreation activities. In addition, tourists usually purchase various products during the trip, and these purchases are recorded in different sectors. For instance, when a tourist purchases food for a packed lunch, textiles for outdoors activities, and petrol for a car, each of these activities belongs to a different economic sector. To overcome this challenge and to provide a comprehensive picture on tourism, the national accounts are supplemented with tourism satellite accounts (TSA). They are produced according to international standards that enable comparisons across countries and regions.

Tourism satellite accounts cover various aspects of tourism. They express the spending of inbound and domestic tourists on each product category in the studied country. They also reveal the importance of tourism to each economic sector along with the share of tourism in gross value added and GDP formation. Moreover, they offer statistics on employment, investment, accommodation, and tourist flows. The purpose of the TSA is to offer a general picture of tourism, but certain aspects are unfortunately not completely acknowledged in the statistics. For instance, accommodation statistics only recognize establishments with at least 20 beds. The growth of the sharing economy has challenged how statistics are produced, but new data collection methods have lately been introduced to capture such activities.

The statistics data focus on describing past events and developments. They are often produced annually or quarterly. The TSA provide data on the direct impact of tourism on company' turnover, production, and employment. As the above-mentioned examples suggest, the existing official statistics provide extensive information on tourism, but not specifically on hunting tourism.

DATA DESCRIPTIONS AND STATISTICAL ANALYSIS CAN REVEAL IMPORTANT ASPECTS

In economic impact assessment cases, the description, adaptation, and statistical analysis of existing or newly gathered data forms the starting point for the evaluation process. National accounts, TSAs, national databases on hunting tourism, and other existing data sources can be used to describe the studied phenomenon. For instance, the supply and use tables included in national accounts can be utilized to illustrate monetary flows within the economy. Such information allows understanding value creation in various economic sectors among other aspects. Similarly, national accounts data may be useful if the aim is to track past changes in economic structures. By combining statistics and applying certain assumptions, it is possible to estimate the importance of the studied subject at the local level, for example. Statistical analysis on existing data can be used to reveal differences between selected regions among other details. Corresponding procedures can be used to describe, adapt, and analyse the data collected for the study in question.

AUTHORITIES CAN PROVIDE DETAILED DATA ON HUNTING TOURISM

Hunting management authorities can collect data on hunting tourism in their own region. Such data may be available for research purposes. For example, Wildlife Service Finland, within Metsähallitus (the Forest and Park service), manages state-owned lands, sells hunting permits, and supervises hunting in these areas. They also regularly collect survey data concerning tourist consumption of goods and services during hunting trips on state land and publish reports utilizing the collected data. The number of hunters in Finland is registered by the Finnish Wildlife Agency. They also produce materials related to game, annual bag, and game management. Natural Resources Institute Finland also collects data of hunters, hunting activity, annual bag, and game populations.

Serbia provides another example. Statistical data on hunting and the hunting tourism sector are collected by various governmental and non-governmental organizations in the country, including the number of registered hunters and their gender ratio and age structure. The number of hunting tourists and issued tourist hunting licences are also recorded. These data are not available publicly but can be obtained on request from the Hunting Association of Serbia. Data on hunting grounds (e.g. the population levels of game species and the annual bag) are collected by the Forest Administration of the Republic of Serbia (Ministry of Agriculture, Forestry and Water Management of Serbia) and are available in the Statistical Yearbooks of the Republic of Serbia.

Each hunting ground in the Czech Republic is obliged to report data to its municipality and further to the Ministry of Agriculture. The Forest Management Institute is also a good source of data. Data on the number of hunting grounds, distribution of free hunting grounds, game preserves, or pheasantries, and division according to ownership system are all available from the Czech Statistical Office. Furthermore, statistics are available related to the planned and actual hunts of individual game species, spring population levels of game species, numbers of feeding establishments, and the number of domestic hunting licence holders. Outside hunting grounds, these data are managed by the Military Forests and Estates of the Czech Republic, state enterprises, and national park administrations.

The National Game Management Database is the main data source on hunting and wild game management in Hungary. It was established in 1996 but also incorporates available data from previous years. It contains spring population levels of game species, annual wild game management reports including annual game harvest data, trophy scoring data, and a simplified financial report for each wild game management unit. Hunting licences are issued by the Hungarian Hunters' National Chamber, where data on domestic and foreign hunters are kept.

Although the types of data available differs by country, it is always worthwhile to explore potential existing studies in your region before starting your own study.

SUMMARY

- Official statistics and other existing databases provide open access materials that can be used to describe the economic situation and assess the economic effects.
- National and regional accounts offer an overview of the economies.
- Tourism Satellite Accounts supplement other databases with data on tourism.
- Statistical materials concentrating on hunting tourism may be available for research purposes from e.g. national authorities.
- The description, adaptation, and statistical analysis of existing or newly gathered data usually forms the starting point for impact assessments.
- Always check for potential existing studies in your region before starting your own study!

ADDITIONAL MATERIAL

National and regional accounts along with tourism databases provided by Eurostat:
https://ec.europa.eu/eurostat/data/database

3.2 DIRECT ECONOMIC IMPACT – THE NORDIC MODEL

LOCAL/REGIONAL ECONOMIC IMPACT IN FOCUS

The Nordic model represents an evaluation method of the economic impact of tourism on a regional or local economy. It focuses on measuring the economic effects of tourism in specific spatial settings. The Nordic tourism model is flexible, easily applicable, and accurate at local and regional levels, although necessary data may be expensive to gather. The Nordic model assumes that various data collection methods are used. Many researchers emphasize the Nordic model as suitable for studies conducted in rural regions, where a lack of data is continuous, and recommend it to be applied to small or medium local and regional economies. In some cases, the regional economic impact of tourism could not be evaluated with economic analyses that require exact statistical data. The Nordic model requires data, such as enterprise turnover, employment numbers and operation cost, which can be collected through company interviews and visitor surveys.

TIME ASPECT EVALUATION

The Nordic model can be applied in both *ex post* and *ex ante* evaluations. However, most tourism-related studies relying on the Nordic model focus on *ex post* effects. In the hunting tourism context, these models reflect a situation during a selected period: how much the local community or region has earned from hunting tourism activities in one year or during a selected period. The Nordic model can be applied to evaluate the economic impact of conducting tourist hunts on the local community or regional economy.

TWO APPROACHES TO ECONOMIC IMPACT CALCULATION

There are two approaches within the Nordic method — the incomes model (receipts method) and the expenditure model — and these can be applied separately or together. Even

though the direct impact is the main focus in Nordic models, indirect effects can be included in the studies by using various multipliers derived from statistics. Indirect revenue effects are estimated based on the purchase of goods and services by the enterprise. In addition to indirect income effects, the model can be extended to cover indirect employment and wage effects. However, indirect effects are often ignored, as they are small in rural and tourism regions with narrow economic structures or due to resource/data limitations. **The income method** studies the supply side of tourism, involves tourism companies, and analyses the economic effects of tourism on local companies by collecting data concerning the number of employees and tourism turnover from tourism companies within the local tourism industry. **The expenditure method** studies the demand side of tourism and involves tourists by analysing the money spent by tourists in a given region and examining the total expenditure of tourists on various tourism services and products.

Results from these two models can be analysed jointly. Determining the employment, wage, and tax income impacts, along with the multiplier impact, is based on the allocation of the direct income and information on sales, staff numbers, staff costs, and purchases. On the other hand, an average tourist's expenditure could be multiplied by the number of tourist arrivals in the region to evaluate the economic impact of tourism in the whole region. Nordic model calculations can be performed using any available programme for statistical analysis.

Direct economic impact can be evaluated locally or regionally and can be expressed per various economic sectors. Thus, they can be reflected in the result variables such as employment, wage, tax income, local company incomes, local community income, and regional income. In the hunting tourism context, result variables may include hunting ground income, hunting tourism agencies' income, hunting tourist expenditures during a hunting trip or per day during a hunting trip.

HOW ASSESSMENTS WORK

Within the incomes method, all necessary data from the local tourism industry are collected through questionnaires or interviews of local tourism companies (employment numbers, salary costs, company purchases, annual turnover). The expenditure model requires a tourist expenditure survey in which tourists declare how much they have spent on tourist products and services. In the hunting tourism context, the database includes e.g. data on hunting tourists' overnight stays, the trophy value of the hunted game and weight of the trophies, the number of organized tourist hunts, prices of each organized hunt, other fees that hunters pay the organizers, and additional services charged during hunting tourism activities. Data on hunters' average additional spending (i.e. spending other than the fees paid for the hunting tourism trip) need to be collected from a survey of hunting tourists. Non-local hunters that have bought tourist hunting permits are often the target group and they are considered hunting tourists instead of local hunters.

POSSIBLE ISSUES?

Collecting reliable data for the Nordic model may be an expensive and time-consuming process. Also, the collected information is often of questionable quality. This is because respondents estimate their spending during the trip, and estimates may be unreliable. The availability of hunting tourists is one of the limitations during such surveys in the hunting

tourism context. Hunting ground managers often consider consumption and cost questions to be highly sensitive and are not willing to burden their tourists with such questionnaires. Collecting sufficient numbers of respondents may consequently be difficult. Therefore, a researcher could carry out interviews with hunting ground managers, hunting guides, and hunting tourism outfitters, who could provide relevant data on the average consumption of tourist hunters during one hunting tourist trip (see Text box 3).

In the income model, results often depend on the eagerness of hunting tourism companies to cooperate. They are often unwilling to reveal all the information concerning their businesses. In some cases, one solution option could be to use statistical data, e.g. average tourist consumption levels or tourism company cost structures.

TEXT BOX 3. EXTRA: EXAMPLES OF QUESTIONS ASKED DURING INTERVIEWS

HUNTING

1. How many hunts were organized during the selected period?
2. How many licences were sold to domestic tourists during the selected period?
3. How many foreign tourists came to hunt during the selected period?
4. How much money did a hunting ground receive from hunting agencies for each organized hunt?
5. What other fees were paid by the hunters to the hunting ground?
6. Are these fees based on the number of persons participating in the hunt or are they individual bag prices?
7. What is the percentage of foreign tourist hunters in relation to the total number of tourist hunters in your hunting ground?
8. How many tourist hunters visit your hunting ground annually?

CUSTOMER ECONOMICS

1. From which countries do tourist hunters come to your hunting ground?
2. How many days does the average domestic tourist hunter spend in your hunting ground?
3. How many days does the average foreign tourist hunter spend in your hunting ground?
4. What is the average daily spending of a tourist hunter in your hunting ground?
5. What is the average daily spending of a domestic tourist hunter in your hunting ground?
6. What is the average daily spending of a foreign tourist hunter in your hunting ground?
7. What is the average daily spending on other activities (besides hunting)?
8. Where are the accommodation facilities located – on or out of the hunting ground? Which facilities are used for accommodation and meals?

SUMMARY

- The Nordic model represents an impact evaluation of tourism on a regional economy and calculates tourism's economic impact based on tourist consumption.
- The Nordic model measures the economic and employment effects of tourism in specific spatial settings, and there are two approaches: the incomes model involves tourism companies and analyses the economic effects of tourism on local companies by collecting data from tourism companies within the local tourism industry (e.g. the number of employees and tourism turnover); the expenditure model involves tourists and examines the sums of money spent by tourists in the selected community/region and their total expenditures on various tourism services and products.
- The databases are mainly compiled from interviews and surveys. Some data may be expensive and time-consuming to collect, and the data may be of insufficient quality (depending e.g. on the willingness of tourism businesses to cooperate, the risk of obtaining unreliable data, and respondents' unreliable spending estimates).
- The results of Nordic model studies can be used as inputs in other studies, e.g. CGE, CBA, and I-O studies, which are presented in later chapters.

KEY TERMS

Direct economic impact. The most direct effects of hunting tourism occur within the primary tourism sectors – hunting grounds, accommodations, restaurants, transportation, and retail trade.

The incomes model. Focuses on the cash flow from hunting tourists received by hunting tourist enterprises within the local tourism industry.

The expenditure model. Focuses on the total expenditures by hunting tourists on various hunting tourism services and products in the selected area.

ADDITIONAL MATERIAL

Saarinen, J. (2003). The Regional Economics of Tourism in Northern Finland: The Socio-Economic Implications of Recent Tourism Development and Future Possibilities for Regional Development. *Scandinavian Journal of Hospitality and Tourism*, 3(2), 91–113. https://doi.org/10.1080/15022250310001927

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Stiernstrand, J. O. (1995). The Nordic Model: A Theoretical Model for Economic Impact Analysis of Event Tourism. *Festival Management and Event Tourism,* 3(4), 165-174. https://doi.org/10.3727/106527095792232514

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TEXT BOX 4. CASE:
DIRECT ECONOMIC IMPACT OF ROE DEER HUNTING TOURISM IN THE VOJVODINA REGION (SERBIA)

BACKGROUND. Hunting is a popular form of nature recreation, a significant form of business, and an important part of cultural heritage. Hunting tourism can have a significantly positive effect on the local community and bring it considerable economic benefit. Funds raised through hunting tourism are returned to these regions through direct investments and sustainable wildlife management. Serbia has a long tradition in organized hunting that, together with its natural potentials and favourable climate and orographic factors, represents a high-quality foundation for the sustainable development of the hunting sector. The Vojvodina region is a plain situated in the northern part of the country, with 154 hunting grounds. Almost all national record roe deer trophies are shot in hunting grounds managed by hunting clubs in Vojvodina.

RESEARCH QUESTION. The aim was to estimate the direct economic impact of hunting tourism activities with a focus on the Vojvodina region. The region was chosen as it is the most developed hunting tourism destination in Serbia, with the most well organized hunting grounds. It is mostly a rural area, with developed agriculture along with long hunting and hunting tourism traditions. Most foreign hunters visiting Serbia come to hunt in Vojvodina. The main objective of the study was to apply the Nordic model to evaluate the economic impact of hunting tourism to the local community in 2019.

MATERIALS AND METHOD. The Nordic model was applied to estimate the direct economic impact of roe deer hunting tourism in the Vojvodina region. The analysis is based on information gathered from a survey and interviews with hunting ground managers and hunting tourism outfitters. The survey was conducted among hunting tourists. One of the renowned hunting grounds in Vojvodina region was chosen for analysing the economic impact of roe deer hunting. Data on tourist stays, trophy values, and the weights of killed trophies were collected from this hunting ground. Data were also collected regarding the number of organized tourist hunts, prices of each organized hunt, other fees that hunters pay to the organizers, and additional chargeable services provided during hunting tourism activities. Data on the average additional spending of hunters (spendings other than the fees paid for the hunting tourism trip) were obtained from interviews with two hunting managers, three hunting guides, two gamekeepers, and two hunting outfitters. The interview was designed with 16 questions divided into two themed sections (Roe deer hunting and Customer Economics).

RESULTS. Foreign hunting tourists who came to hunt roe deer were from Switzerland, Austria, Germany, and France, and significant numbers of domestic tourist hunters were also recorded, especially in 2020, which was the year the COVID-19 pandemic began. Tourist hunters stayed between two and six days. The selected hunting ground had an income of EUR 35 184 from roe deer trophies during the 2019 roe deer hunting season. During this same season, the local community gained an income of EUR 38 104, which was realized by 11 hunting tourists (8 domestic and 3 foreign). According to the interviews and statistical data, one hunting tourist spends an average EUR 2 126 per hunting day in the Vojvodina region. Vojvodina has 21 hunting grounds that organize tourist hunts for roe deer. As data concerning the exact number of roe deer hunters were not available, a qualified guess was made based on interviews of hunting tourism experts in Vojvodina (an average of seven hunters per hunting destination and an average stay of two days). Thus, (21×7) 147 roe deer tourist hunters came to the area in 2019, and the direct economic income of roe deer hunting tourism was (EUR 2 126 × 147 tourists × 2 days) EUR 625 132.

CONCLUSIONS. The regional economic impact of hunting tourism in Vojvodina is considerable given the small number of tourists from whom a significant income is generated. Resources raised through hunting tourism are later used in these regions through direct investments and as a tool for sustainable wildlife management.

3.3 MICROECONOMIC OPTIMIZATION

MICROECONOMICS IS A LABORATORY FOR BUSINESS

Microeconomics is the study of how individuals and business entities make rational decisions to follow their own interests within the field of possibilities defined by their economic environment. The most typical microeconomic problems are how people maximize their utility from the consumption of goods and services, and how businesses can best use their resources to maximize profits. Microeconomics, therefore, helps us understand how the economy works from a business entity viewpoint and provides a theoretical background for business decisions.

Any production process can be seen as the conversion of input resources (namely labour and capital) into products. The use of inputs implies financial sacrifices that are called costs, and on the other end, products can be sold, which generates revenue. The balance of revenues and costs during a certain time period is profit, which is the fundamental aim of business, by definition. In theory, some inputs are proportional to production (factory working hours, raw materials, fuel), while other inputs are needed on a fixed level (buildings, office workers, management, etc.), at least in the short run. Prices may also depend on the quantity of products to be sold, but it strongly depends on the market structure at hand.

Once a business process can be modelled as the flows of costs and revenues, their 'economic impact' can be analysed from various perspectives. Some of these perspectives, such as cost-benefit analysis, are introduced in the following chapters. Here we present production optimization on the microeconomic level. The wild game population is the basis of operation in hunting tourism, and it can be a purely natural population, such as the grouse populations in Finland, or a managed population like red deer populations in Central and Eastern Europe and the Balkan region. Additionally, wild game is kept in a fenced area in specific cases and is therefore intensively managed. Intensive management requires more costs, allows for more control of business processes, and calls for due consideration of profitability.

As evident, profit is dependent on product prices, the variable and fixed costs of production, and the quantity of the produced products. The latter is usually referred to as the '**scale of production**'. As the scale of production increases, the total costs will also increase, but the average cost per product decreases, as the fixed costs spread over larger quantities. Moreover, variable costs are not necessarily linearly proportional, which means that if an additional product required less additional variable cost than the previous product, the average cost per product decreases. For example, a decreasing average cost in wild game management can be observed in an intensively managed fenced area. As the depreciation of fences and other infrastructure is one of the main cost items, the larger the game harvest, the less these costs should be financed from a harvested specimen.

Decreasing average costs along with increasing production is called the **'economies of scale'**. However, this phenomenon has its limits: as production approaches the maximum capacity of the current production facility, additional products would require (or cause) increasing additional costs (e.g. due to increasing maintenance costs or an increase in waste products). In wild game management, the carrying capacity of natural habitats poses strong limitation, for example to game population sizes and to trophy quality. As the population size converges to this natural limit, the costs of wild game damages or of providing extra forage will increase at an increasingly rapid rate.

OVERCOMING THE LIMITATIONS OF EMPIRICAL DATA

The detailed analysis of cost structure and sales options may be the basis for an analytical economic model. In empirical studies, however, the cost structure and the effects of production scale on costs are rarely available or the data sources suggest no common standardizable patterns (e.g. various production technologies in the sample). In such cases, it is more practical to perceive the profit as a stochastic function of production, and as such it can be approximated by regression analysis. Regression analysis is a common method in mathematical statistics that aligns the chosen mathematical function in a way that best fits the empirical data.

Once the relationship between revenues, costs, and production is known, either through analytical or stochastic models, the optimum product quantity that provides the maximum profit can easily be calculated using a mathematical analysis of the profit function. If we are to find the local maximum point of a function, we need to calculate where its first derivative equals zero. Unless obvious, the maximum point can be identified if the second derivative is negative.

AVAILABLE DATA PREDICT THE SCOPE OF ANALYSIS

The production model, or any approximation of the profit function, allows us to study the past operations of businesses, but it is also suitable for making future predictions as long as economic conditions do not change significantly. The size of the main game population or the size of its annual harvest determines the profit range of a hunting unit. Such models can therefore be used to evaluate the financial effects of the various wild game management options.

Production optimization most typically considers current situations, and the focus of analysis is on how profit relates to production. Therefore, 'the time value of money' is out of the scope. The only aspect when time is considered is the computation of variable and fixed costs. All cost items that cannot be adjusted over the study period should be considered fixed costs.

Although the single goal of profit maximization is to identify the optimal production level, the underlying cost analysis can provide us with valuable insights of the wider economic linkages. Some of the cost items in the field of hunting tourism represent the economic effects of wild game management on other business actors. For example, wild game damages are one of the major costs for wild game management units and may remain a significant source of conflicts even if compensated. In summary, these methods mostly cover direct economic impacts.

Optimization efforts aim to find optimal production that can be expressed in a certain quantity of output products or a combination of input resources. In the first case, we need to imply that the production method and, inherently, the cost structure are either unrevealed or we have little influence over them. In the case of a natural or semi-natural wild game population, population size, for example, is the only control mechanism available, as it influences both the hunting opportunities and the wild game damages to be compensated. Other cases may have more inputs, and therefore more options, for optimizing production by selecting favourable input combinations.

TEXT BOX 5. EXTRA: PROFIT MAXIMIZATION

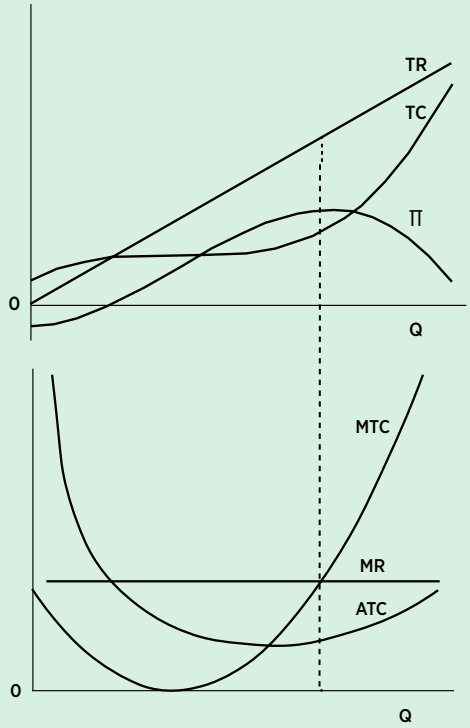
The graphs below show total revenue (TR), total costs (TC), and profit ($\prod$) as functions of production (Q). Profit maximum is the point where the marginal revenue (MR) equals the marginal total cost (MTC). Marginal revenue is the first derivative of the total revenue, which in this case is the unit price of the product. Marginal total cost is the first derivate of the total cost, which can be interpreted as the cost increase caused by a one-unit increase of production.

$$\prod = TR - TC$$

$$MR = \Delta TR/\Delta Q$$

$$MTC = \Delta TC/\Delta Q$$

$$MR = MTC \rightarrow \prod_{max}$$



If the cost and revenue structure is unknown but the profit–production relationship can be estimated from empirical data, the profit maximum is where its first derivative equals zero.

$$\Delta\prod/\Delta Q = 0 \rightarrow \prod_{max}$$

Obtaining sound input data for any economic analysis is always critical. The reason for applying models, estimates, and statistical methods is usually justified by a lack of reliable, sufficiently detailed, and accessible data. Problems arise because precise managerial accounting and controlling system are rarely applied by wild game management organizations. Specific data surveys may partly fill this gap, although, in most cases, these surveys are based on expert opinions and estimates of unknown accuracy.

In practice, business optimization is never a single action, but rather a continuous and iterative process that involves reviewing the business environment, revising the business strategy, and detailed business planning. Profit maximization in the presented form occurs when project alternatives or scenarios are evaluated. Although hunting is a traditional form of natural resource management and 'business as usual' is often the dominant practice, the comparative analysis of time series or regional data may lead to the identification of best practices and hence to profit maximization. These require sufficient available data.

All microeconomic theories and models assume that business actors are perfectly informed about the business environment and their options, and that they make rational choices according to their best interests, implying that they want to maximize their profits. This is not always the case in hunting, as other aspects including recreation, the demonstration of wealth, or political influence may play a significant role. However, microeconomic methods serve as useful assessment and decision support tools.

Microeconomic models usually target basic, fundamental 'economic laws' and therefore greatly simplify everyday situations. They tend to ignore important factors that highlight and better represent the nature of specific economic phenomena. However, applying such theories allows the user to flexibly choose the factors that are assumed to be relevant.

SUMMARY

- Costs and revenues will change along with the scale of production.
- The aim of production optimization is to find the production level that results in the maximum profit.
- Empirical data can be used to reveal the production–profit function.
- The maximum of the profit function can be found with mathematical methods.

KEY TERMS

Fixed and variable costs. Variable costs are strongly coupled with production, so they change along with production. Fixed costs are difficult to alter, therefore they remain on the same level regardless of the changes in production.

Profit. Profit is the balance of revenues and costs over a certain time period.

Economies of scale. A larger scale of operation allows for higher operational efficiency, to build upon synergies and to spread fixed costs over larger output.

Marginal and average cost. Marginal cost is the cost increase that arises from an incremental growth of production. Average costs are the cost per unit of production.

Regression analysis. Regression analysis includes processes to identify the mathematical function that best describes the relationship between predictor(s) and dependent variables and allows for mathematical characterization of this relationship.

ADDITIONAL MATERIAL

Mapleton, C. S. (2020). *Math Practice for Principles of Microeconomics*. Lulu.com. Econ Books Now.

Putman, R. (2012). *Scoping the economic benefits and costs of wild deer and their management in Scotland*. Scottish Natural Heritage Commissioned Report No. 526.

TEXT BOX 6. CASE: THE EFFECTS OF RED DEER POPULATION SIZE ON THE ECONOMICS OF WILD GAME MANAGEMENT

BACKGROUND. Wild ungulate populations show steady growth in Europe. The most common game species in Hungary are red deer, roe deer, and wild boar. The estimated red deer population size increased eightfold from 1960 to 2020, which created a stable commodity base for commercial hunting. Besides the growth in numbers, red deer in particular exhibit outstanding trophy quality, which attracts commercial hunters and generates remarkable income. However, since the political changes in the mid-1990s, the increasing living standards in Hungary have allowed domestic hunters to not sell all hunting opportunities to foreign hunters.

The growing population size yields more hunting opportunities and therefore potentially generates more income. It is also better suited to the needs of commercial hunters, as they usually prefer short visits and want to select their desired trophy from at least a few options. On the other hand, increasing the population size requires more active wild game management including predator control, artificial feeding, etc. and leads to larger crop damages. All these increase costs. Beyond a certain game density population size, growth can lead to significant damages to the natural environment and to a decrease in overall trophy quality.

RESEARCH QUESTION. The study aims to discover the effects of red deer population size on total income, income from hunting tourism, and profit. According to the hypothesis, the larger the population size, the more income is generated, especially from commercial hunting.

MATERIALS. The population size of each wild game species is estimated annually by the hunting units. As there is no standardized estimation method, population size statistics accuracy is unknown. Some studies have revealed significant contradictions between official statistics and population dynamics models. On the other hand, annual harvest data are much more reliable, as they are connected with official administrative processes such as compulsory trophy measuring, food safety, meat inspections etc. We assumed that the annual harvest is a satisfactory indicator of population size, and therefore the annual deer stag harvest in each county for each year was used as an observation and regarded as the independent variable. Total income, income from commercial hunting, and profit were also collected as dependent variables from each county for each year.

METHOD. A pairwise regression analysis was conducted to reveal the relationship between the variables and hence the optimal population size from the microeconomic viewpoint.

RESULTS. Total income has a strong positive relationship with the annual red deer stag harvest and the same positive relationship was detected with commercial hunting income, although with less deterministic power. Profit, however, shows a similar positive relationship at lower red deer stag harvest levels, but after a climax point a further increase in harvest levels results in decreasing profit.

CONCLUSIONS. Hunting income is determined to a great extent by the red deer stag harvest in Hungary, as it is a major income source for the sector. A high red deer stag harvest level very likely implies large commercial hunting income, but this relationship is slightly weaker, as the commercialization of hunting opportunities are influenced by other important factors such as location, reputation, etc. Higher total income can also originate from higher membership fees of the hunting clubs. After a certain point, an increase in red stag harvest level entails additional wild game management costs (marginal cost) that exceeds the income growth (marginal revenue), and the profit consequently begins declining.

3.4 ECONOMIC MODELLING – INPUT-OUTPUT MODELS

SECTORAL INTERCONNECTEDNESS IN THE ECONOMY

Input-output (I-O) models are macroeconomic models used to analyse inter-industry relationships. The basic idea is that an output of one sector is an input for other economic sectors. Therefore, the models describe the interdependencies between economic sectors, explaining how the equilibrium between demand and supply is achieved. The advantage of this method is the ability to quantify the multiplier effects that are caused by the links of hunting tourism and hunting tourists to other sectors of the economy.

This mathematical model describes cross-sectoral money flows within a region's economy. Money flows are calculated based on what one industry must purchase from all other industries to generate output worth one monetary unit. The method is based on a detailed quantification of the interrelationships in the sector in which resource supply and use are in balance in the economic system.

MODELS ARE FLEXIBLE REGARDING TIME

Input-output models can be used in both *ex post* and *ex ante* studies. The advantage of *ex ante* evaluations is the ability to plan thoroughly and quantify the decision impact in advance. Historically, input-output models were mainly used in the centrally planned economies of the former Soviet bloc, as the models made it possible to plan the development of transactions and thus production throughout the economy. Nowadays input-output models are used, for example, in ecological economics to map the biophysical impacts of economic activity. Similarly, input-output models can be used to detect the effects of past (*ex post*) events.

Input-output models can be static or dynamic. A static input-output model depicts the economy during a particular year. A dynamic input-output model describes the inter-sectoral balancing over time and involves the impression of durable capital. Dynamic models extend the basic static input-output model with a capital-flow matrix, enabling studies covering the development over several years, for example. The main goal of this matrix is to capture the influence of realized investment to technical capital on the growth of the whole economy.

MODELS DETECT THE MULTIPLIER EFFECT ACROSS THE WHOLE ECONOMY

Input-output models are used to determine the total economic impact, including the direct and indirect effects occurring in the whole economy. In the hunting tourism context, the initial expenditure of hunting tourists can create the direct impact. The indirect effect includes changes in the production of intermediate goods consumed by those who provide products to hunting tourists. Additionally, the indirect effect covers all other subsequent rounds of production, i.e. production changes that occur because the producers of intermediate goods also need inputs from other sectors.

Input-output models are suitable for determining certain aspects of the economic impact of government incentives and investment projects. The model results reveal, for instance, how a change in demand affects production levels, gross value added (or GDP), employment (job creation), wage income, or corporate profits.

ASSESSMENT IMPLEMENTATION

The method of feedback, i.e. ties to all input suppliers and their subcontractors, is the basic approach to examining the interdependencies between sectors.

The first task is to construct an input-output table that describes the economic transactions between various actors such as industries. The table consists of observed data. Table rows describe how outputs are distributed in the economy (who consumes the products). Table columns describe what inputs are needed in each industry so that they can produce their outputs. In addition, the table includes data on final markets (such as household consumption) and value added (such as labour).

The second central task is to calculate the multipliers. The input-output table will therefore be examined vertically, i.e. by focusing on the columns and the link between input suppliers and the industry using various inputs. The matrix of input coefficient A is calculated so that all values in the first column are divided by the total sum of the column, and the same procedure will be performed for all columns. These coefficients indicate the share of each individual intermediate that is consumed to produce one output unit.

TEXT BOX 7. EXTRA: INPUT-OUTPUT MODEL CALCULATION

The first step in quantifying feedback is to normalize the symmetric input–output table by columns:

$a_{ij} = z_{ij} / x_j$,

where *i* and *j* denote industries, *z* the value of one input, *x* the value of output, and *a* the share of one input's value of the total output value. For instance, one coefficient could describe the importance of fuels in producing transportation services.

These calculations give a matrix of input coefficients *A*, which indicates the value of each intermediate consumed to produce one unit of a particular product.

The coefficients of total production can be calculated by subtracting the matrix of input coefficients *A* from the unit matrix *I* and creating an inverse matrix.

This gives a matrix of coefficients of total production L, the so-called Leontief inverse matrix. This operation can be written by the formula:

$L = (I - A)^{-1}$

The coefficients of the total production will be calculated using the Leontief inverse matrix. The sums of the columns of this matrix are production multipliers. Next, it is necessary to select which sectors are crucial to hunting tourism and for determining the overall multiplier as their average. This multiplier multiplies the total expenditure of hunting tourists and thus uncovers the impact of hunting tourism on the whole economy, including direct and indirect effects.

The initial data source for quantifying cross-sectoral links is a set of so-called input-output tables, which, according to the European standard ESA 1995, include supply and use tables, tables linking supply and use tables with sector accounts, and symmetric input-output tables (SIOT). These tables are mainly an analytical tool that allows examining cross-sectoral links and measuring the impact of exogenous effects on the economy.

Determining the economic impact of hunting tourism requires collecting the following data:

1. Information concerning the number of hunting tourists and their behaviour. This information is collected according to the number of hunting licences sold to foreign and domestic hunters. In addition to the total number of hunting tourists, it is necessary to obtain information concerning their geographical origin and structure, the value of their expenses, and the share of expenses directly related to the monitored hunting activity. A questionnaire survey can be used to gather such information along with knowledge of hunting tourist behaviour.

2. Information concerning the expenses of companies providing goods and services to hunting tourists. These data are sourced from the internal materials and accounting of organizations. The expenditures must be divided into the SIOT categories to prepare them for subsequent I-O analysis. Due to calculation of economic impacts on individual reference areas (city, region, and country), expenditures must furthermore be categorized according to the geographical locations of suppliers, i.e. expenditures flowing to suppliers from the same city, the same region, from other domestic regions, and expenditures flowing from abroad. The organization's revenues, both subsidies and contributions from public budgets and finances from private sources, need to be subjected to a similar geographical distribution. The value added tax payments on the input and output sides must also be analysed. The data prepared in this way for the organization are linked to I-O coefficients and multipliers and subjected to cross-sectoral analysis.

Symmetric input-output tables (SIOT) are derived by mathematical transformation from supply and use tables at basic prices. These tables are regularly compiled for five-year periods (years ending in a 0 or a 5) by national statistical offices according to the EUROSTAT Manual. This is required by the EU transmission programme.

INPUT-OUTPUT MODELS ARE BASED ON REALITY SIMPLIFICATION

For the model to be used, the assumptions of the given model must be met:

1. The total output of an industry is generally usable as inputs by other industries, by itself, and by final-demand sectors.
2. Each sector only produces one homogeneous product.
3. Customer demands, prices, and factor supplies are given.
4. There are constant returns to scale.
5. There are no external economies and diseconomies of production.
6. No substitution occurs between various materials and technological process. There are assumed fixed input coefficients of production.

It is necessary to realize that the multiplier of total production also includes all intermediate consumption, which counts the inputs from one subcontractor through another subcontractor to the supplier of the requested goods or services. Therefore, it significantly overestimates the overall impact of the direct increase in demand. As a result, its informative value is significantly reduced, so this indicator must be handled very carefully.

SUMMARY

- The input-output (I-O) model allows identifying interdependencies between industries in the economic system because the inputs of one industry are the outputs of another industry and vice versa. Therefore, these relationships ultimately lead to a balance between supply and demand in the economy.
- The symmetric input-output tables (SIOT) allow for identifying production multipliers and thus evaluating the multiplier effect within the industry.
- I-O models cover the direct and indirect economic impacts of hunting tourism.

KEY TERMS

Gross value added. The value that producers have added to the goods and services they have bought.

Input. Something that is purchased for an enterprise; input is obtained; represents the expenditure of the firm.

Multiplier. A coefficient indicating the change in a certain macroeconomic quantity depending on the change in another quantity.

Output. Something that is sold by an enterprise; output is produced, represents the receipts of the firm.

SIOT. Symmetric input-output tables.

ADDITIONAL MATERIAL

Tan, R.R., Aviso, K.B., Promentilla, M.A.B., Yu, K.D.S. & Santos, J.R. (2019). *Input-Output Models for Sustainable Industrial Systems: Implementation Using LINGO*. Lecture Notes in Management and Industrial Engineering. Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-13-1873-3

TEXT BOX 8.
CASE: INPUT-OUTPUT ANALYSIS OF HUNTING TOURISM IN THE CZECH REPUBLIC

Background. Determining the impact of hunting tourism is an important component for deciding on future support when developing hunting tourism in the Czech Republic. The area faces major problems arising from the local overpopulation of hoofed game, which cause significant damage to forest and agricultural areas. In most areas of the Czech Republic, hunting is a hobby activity carried out by local residents. The number of people engaged in hunting is constantly decreasing. Hunting tourism may thus be one of the solutions to solving the game management problem while concurrently causing a significant economic impact.

Research question. The study aim was to determine the direct and indirect economic impacts that hunting tourists have on the Czech Republic. Hunting is mainly offered by state-owned enterprises: in forests, military forests, and on estates in the Czech Republic. Hunts are also offered by hunting clubs, mainly in cooperation with well-known hunters, who regularly visit the area, or tour operators and travel agencies. The Czech Republic has 6 879 260 ha of hunting land, which represents 88% of the total area.

Materials. The model data are obtained from the Symmetric Input-Output Table (SIOT) for 2015, published by the Czech Statistical Office. Another important data set stores information on the number of hunters who participate in fee hunting, their consumption, and the distribution of this consumption. The number of foreign hunters was determined based on the number of hunting licences issued to foreigners, and the number of domestic hunters was determined by a qualified estimate based on the total number of domestic hunters and hunters who, in the questionnaire survey, stated that they were fee hunting. Hunter expenditures and their structure were determined using a questionnaire survey.

Method. The study was conducted with an I-O model due to its ability to evaluate short and long-term impacts including direct, indirect, and induced effects, also when considering resource restrictions.

Results. The following multipliers were determined based on SIOT calculations.

Item	Multiplier	Item	Multiplier
Agriculture and food production	1.9	Catering and hospitality	1.8
Transport	2.1	Other manufacturing	1.6
Accommodations	1.7	Other recreation services	2.0
		Total	**1.8**

In 2019, 10 634 foreign hunters visited the Czech Republic. A questionnaire survey distributed among foreign hunters showed that they spend an average of EUR 1 776 per hunting stay. If we multiply this value by the detected multiplier, we obtain a value of EUR 34.7 million for the total direct and indirect impacts of hunting tourism on the Czech economy. In 2019, 89 309 valid hunting licence holders were permanently exercising the right to hunt. A questionnaire survey conducted among Czech hunters showed that 24.4% of these participate in fee hunting. It also showed that they spend an average EUR 1 181 on fee hunting and related services. If we multiply this value by the detected multiplier, we get a value of EUR 47.3 million for the total direct and indirect impacts of hunting tourism on the Czech economy. In total, hunting tourism brings a value of EUR 82 million to the Czech economy.

Conclusions. Although I-O analysis is based on several assumptions, it can be used to determine the direct and indirect impacts of hunting tourism at local, regional, and national levels. Although the impact is relatively small when compared with other business sectors in the Czech Republic, it is important to realize how a few hunting tourism providers can still to generate locally significant income. The importance and impact are mainly local and mainly affect rural areas. A hunting tourist spent approximately 3.7 times more money than a regular tourist in the Czech Republic. To increase this economic impact in the future, not only increasing the number of hunters is important but also improving the services offered by hunting hosts, thus increasing the overall expenses of hunting tourists.

3.5 ECONOMIC MODELLING – COMPUTABLE GENERAL EQUILIBRIUM MODELS

THE WIDER ECONOMIC IMPACT IN FOCUS

Computable general equilibrium (CGE, also known as applied general equilibrium, AGE) models are used to simulate and analyse the impact of, for instance, policies and various economic changes. The purpose of these models is to assess wider economic effects: how does the studied phenomenon change employment, production, income distribution, or some other aspect within the region in question. Therefore, CGE models describe the whole economies. In other words, the models include all economic actors and transactions between them, and consequently they are regarded as *general* models.

CGE modelling is suitable for numerous research questions. For example, climate change and policies related to it affect economies by reforming energy production, escalating extreme weather events, and transforming natural resource use. Such effects have repercussions: the price relations between commodities change, which alters consumer behaviour; the demand for various intermediate goods changes, which is reflected in trade flows; employment relocates between industries, etc. Similarly, an increase in hunting boosts the demand for hunting equipment and travels to certain regions, which affects consumer demand, production needs, employment, and price levels, among other aspects. Certain industries may concurrently face losses, as hunter consumption is reallocated, and travel levels to other (hunting) regions may decline. CGE models are suitable for capturing such macro-level effects. As the models are designed to study economies on a whole, the studied economic shocks should be large enough so that their impacts remain detectable.

VARIOUS OPTIONS FOR DEALING WITH TIME

CGE models are appropriate for both *ex post* and *ex ante* evaluations. CGE studies often focus on *ex ante* effects, projecting the potential impact of various scenarios. In the hunting tourism context, "what-if" scenarios may include changes to, for instance, hunters' consumption behaviours, hunting licence prices, or predator influence on hunting possibilities. CGE modelling can also be used to detect the role a studied subject played in past economic development.

The basic idea in CGE modelling is to compare two situations: one without the studied change in economic conditions and the other including the studied change. For example, the current local economic situation is compared with a simulated situation that includes changes that the potential growth in hunting tourist flows may cause.

CGE models can be static or dynamic. Static models describe the difference before and after the studied economic change, while dynamic models also describe the adjustment path between these points. Static model versions are calibrated with a base year's values, which often describe the current economic state. This current state serves as the benchmark in impact assessment: how much the indicator values differ between the original current state and the simulated "what-if" situation. Similar to the static version, the dynamic models' economic structures reflect the situation for the selected base year. In addition, the dynamic models' databases include projections of, for example, GDP growth, population development, and technological change over the studied time period. The development of variable values in the original setting is called the baseline, which provides a comparison

basis for obtaining the impact results. Even though baselines capture some changes in economic structures over the years, they do not forecast economic development, which should be remembered when interpreting the results. CGE models are so-called real models, which implies that they do not consider inflation, for instance. Monetary impact results are hence expressed in the base year's price level.

RESULTS INCLUDE INDIRECT EFFECTS AND REFLECT THE MACROECONOMIC IMPACT

CGE models are designed to capture both direct and indirect effects. As an economic shock, such as an increase in sold hunting licences, affects the primary industry or economic actor (such as households), the impact begins to spread in the economy when households alter their consumption bundles or industries change their intermediate use, for example. To produce as accurate and relevant results as possible, CGE models can be combined with other types of models (e.g. energy and resident population models) and databases (e.g. related to natural resources and emissions).

Total economic impact is reflected in many economic result variables. GDP and employment are the most reported CGE modelling results. In addition, the impact in imports, exports, household income, public sector revenues, prices, and changes in economic structures are often investigated. Depending on CGE model type, the results can cover one or several regions.

EVALUATION PROCESS IN PRACTICE

The economy-wide description is realized by building a comprehensive equation system. All the equations are formulated based on economic theories. For instance, CGE models include equations that describe how consumers and producers behave, and how

TEXT BOX 9. EXTRA: SOLVING EQUATIONS

CGE models include dozens of equations, which are solved simultaneously. This example illustrates how a simple equation system is solved.

The demand quantity is described with equation QD and the supply quantity with equation QS. Y refers to consumer income, P to product price, and P_i to producer input price. The supply and demand quantities are equal in an equilibrium market.

$QD = 5Y - 2P$
$QS = -2P_i + 2P$
$QD = QS$

According to our base data sources, the exogenous parameters — consumer income and producer input prices — have following values.

$Y = 4$
$P_i = 4$

With this information, we can calculate market clearing values for P, QD, and QS.

$QD = QS$
$5Y - 2P = -2P_i + 2P$
$4P = 5Y + 2P_i$
$P = 1¼Y + ½P_i$
$P = 1¼*4 + ½*4$
$P = 7$

$QD = 5Y - 2P = 5*4 - 2*7 = 6$
$QS = -2P_i + 2P = -2*4 + 2*7 = 6$

An economic shock changes the value of P_i, i.e. input price, from 4 to 5. The economic impact of this change on endogenous variables P_{new}, QD_{new}, and QS_{new} can be calculated:

$P_{new} = 1¼*Y + ½*P_i = 1¼*4 + ½*5 = 7½$
$QD_{new} = 5Y - 2P_{new} = 5*4 - 2*7½ = 5$
$QS_{new} = -2P_i + 2P_{new} = -2*5 + 2*7½ = 5$

The economic shock that makes the production more expensive would increase product price (P) from 7 to 7½ and decrease the product quantities (QD and QS) from 6 to 5.

GDP is calculated. While economic theories enable determining the impact's direction, *computable* models also quantify the impact. For this purpose, the original values for equation variables are obtained from statistics and prior studies. The whole equation system is then solved simultaneously, which produces the original *equilibrium*. In the equilibrium, supply and demand quantities meet in all markets at some prices.

To evaluate the impact of a phenomenon, the researcher changes the original value of one or some variables. This change is called an economic shock. The equation system is then solved again. This process changes the values of other variables in the equations, so that all markets are in a new equilibrium. These changes in other variables imply the economic impact of the studied economic shock.

The CGE database is mainly compiled from official statistics, especially from national accounts. The database also includes data from econometric studies and other literature sources. For some cases, the database needs to be extended with supplementary materials derived from statistics, prior studies, and other data sources. National accounts are published a few years after the year in question. Therefore, the selected base year in CGE studies is usually a few years before the calculation begins. The general economic structures change gradually, but if the studied industry is facing rapid technological changes, this lag is good to keep in mind. Even though a major part of a CGE database is gathered from existing statistics, it is worth noting that the method is quite data intensive. This becomes evident especially if the researcher needs to describe the subsectors or consumer groups in more detail.

CGE model codes include the equations that describe economies. Some model codes are free to use (e.g. the IFPRI model), while others require licences (e.g. GTAP). Model calculations are performed using either GAMS or GEMPACK software, both of which require licences. CGE modelling requires extensive databases and complex model structures. Publications reporting CGE results usually do not include detailed data and model code descriptions. Even if such details were available, reproducing the calculations is difficult, and their replication necessitates special skills in programming. This has prompted criticism against CGE modelling. In recent years, many CGE modellers have striven to open the models and databases and to support understanding of modelling processes and results.

SIMULATION MODELS ARE STYLIZED PICTURES OF REALITY

As the idea behind CGE models is to describe whole economies, they are naturally simplified and stylized pictures of real-world economies — just like all other economic models. Model equations are based on economic theories, which can be debated. For example, the general economic assumptions concerning utility maximizing consumers and profit maximizing producers have stimulated wide discussion. Similarly, the common CGE model assumption about representative household consumers has been criticized, as consumers significantly diverge in incomes and tastes. Despite the strong, debatable assumptions made in CGE models, they are widely utilized as policy advisory tools due to their ability to provide valuable insights of important economic phenomena, their impact levels, and the cumulative impact of possible adverse effects.

GENERAL VS. PARTIAL EQUILIBRIUM MODELS

Partial equilibrium models share many properties with CGE models. The main difference between these model types is that partial equilibrium models focus on one industry or economic actor while CGE models focus on the whole economy. Therefore, prices in the studied market are flexible in partial equilibrium models, for example, while prices in other markets are fixed. In contrast, CGE models allow prices to change in all markets. Partial equilibrium models are more effective than CGE models at describing certain research questions, as they can outline the studied industry in more detail.

SUMMARY

- CGE models are used to evaluate the wider economic impact of various phenomena, such as changes in tourism or climate change policy.
- Models describe economies as a whole using equation systems that are derived from established economic theories.
- Modelling databases are mainly compiled from official statistics.
- CGE modelling results capture both direct and indirect effects.
- They focus on macro-level impacts, and commonly reported results include changes in GDP, employment, income, and trade.

KEY TERMS

Equilibrium. In equilibrium, supply and demand quantities are in balance at some prices.

GDP. Gross domestic product indicates the market value of all final goods and services produced within the defined region in a given time period.

Intermediates. Intermediate goods and intermediate use refer to inputs that are combined with other inputs and factors (such as land, labour, and capital) to produce goods and services.

ADDITIONAL MATERIAL

Burfisher, M. (2017). *Introduction to Computable General Equilibrium Models*. 2nd edition. Cambridge University Press. https://doi.org/10.1017/9781316450741

Lofgren, H., Harris, R. L. & Robinson, S. (2002). *A standard computable general equilibrium (CGE) model in GAMS*. Microcomputers in policy research. International Food Policy Research Institute (IFPRI).

TEXT BOX 10. CASE: REGIONAL CGE EVALUATION OF HUNTING TOURISM

THE ECONOMIC SIGNIFICANCE OF PROLONGING A HUNTING SEASON IN EAST LAPLAND, FINLAND

Background. The largest group of hunting tourists in Finland is domestic hunters travelling outside their home regions to hunt. They purchase small-game hunting licences for state land and organize hunting trips themselves. Approximately 35 000 to 40 000 licences for state land are sold annually. Grouse species (willow grouse (*Lagopus lagopus*), black grouse (*Lyrurus tetrix)*, and capercaillie (*Tetrao urogallus*)) are the most frequently hunted small game. An experiment to prolong the autumn hunting season was carried out in 2019 due to the larger grouse populations. What impacts such an extension has on regional economies and how many more grouse are actually hunted due to the prolonged season are interesting questions. As grouse hunting is purely based on wild populations, a bag cannot be guaranteed for a hunter who purchases a small-game licence. A hunter may spend e.g. one week on hunting activities and perhaps catch one or two grouse during the entire week. However, their spending per hunting day is estimated to remain relatively stable. As winter hunting is much more difficult than during the autumn season, it may be possible to increase the economic impact by prolonging the season without causing a strong increase in hunting pressure to grouse populations.

Research question. The study aimed to assess the overall regional economic impacts of a prolonged grouse hunting season in the East Lapland subregion of northern Finland. The aim was to reach a realistic understanding of how hunting tourism contributes to regional economies of remote rural areas. East Lapland was chosen as the study region because of its high proportion of state land and because some of the most coveted state-owned hunting land is in the area.

Materials. The main materials included in the impact assessment were the data describing hunting tourist behaviours in East Lapland, especially concerning consumption patterns, visit durations, and licence purchases. Another part of the core data was gathered from national official statistics, particularly from national and regional accounts. Data were provided by Wildlife Service Finland within Metsähallitus and by Statistics Finland.

Method. Total regional economic impact was assessed with a static CGE model RegFin model (a regional model for Finland) developed at Ruralia Institute. RegFin models provide a comprehensive picture of Finnish regional economies, as they describe every region and all economic activities by each industry and other economic actors in Finland. The models have been influenced by the Australian TERM and MMRF models. Calculations were performed with the Gempack software.

Results. Consumption data suggest that the expansion's direct effect on private consumption would be around EUR 300 000. According to the CGE simulation results, each additional euro spent by hunting tourists would increase private consumption by EUR 1.4 if the indirect and induced effects are also considered. Similarly, the regional employment would grow by 0.4 person-years per each EUR 100 000 increase in hunting tourists' spending within the region. The average spending per one bird caught amounted to around EUR 280 in September and around EUR 1 330 in January.

Conclusions. The results show that the money spent by hunters in East Lapland is multiplied in a relatively similar extent as in other tourism-related studies. Because less grouse are hunted during the winter hunt, each hunted bird in January will bring almost five times more income to local economy compared to the hunt in September. A winter hunt could thus be an ecologically sustainable way to generate an economic impact to the region, despite this impact being relatively small.

3.6 COST-BENEFIT ANALYSIS

TOWARDS MORE EFFICIENT RESOURCE ALLOCATION

Cost-benefit analysis (CBA) can be used to evaluate the costs and benefits of the studied phenomenon. The general idea of CBA is familiar to us all. In our everyday lives, we make choices between alternatives based on our individual judgement of pros and cons that we expect each alternative to cause. Similarly, companies make investment and production decisions, for example, based on calculations of the consequences that the various options will cause. A wider perspective is required for policy and various project decisions. A social CBA considers social net benefits (here referring to all benefits and disadvantages that can be presented in monetary form) from the whole society's viewpoint and is therefore a suitable method for such assessments.

The purpose of CBA is to demonstrate which alternative most efficiently allocates the resources. For example, an analysis can support deciding whether it is beneficial to exploit the hunting tourism opportunity. Likewise, CBA can be used to select the hunting management option that contributes most to nature conservation, for example.

THE TIME VALUE OF MONEY IS CONSIDERED IN CBA

CBA assessments are often used to support decision-making of whether to begin a project or not, or whether it is reasonable to implement certain policy measures or not. In other words, they provide information concerning the potential impact of a phenomenon that may occur in the future. For instance, such *ex ante* analyses could support allocating hunting licences in time and location to maximize the social net benefits. CBA can also be performed after a project or policy has been implemented (*ex post*) or during implementation.

The considered costs and benefits occur at various points in time. To allow comparisons of all the asynchronous monetary values, they need to be presented as costs and benefits that occur simultaneously on the current date. The impacts are therefore transformed to present values. In other words, CBA takes into consideration the **time value of money**.

Such transformations are needed because time affects the value of money. People are impatient and generally value more highly those benefits that they obtain today than benefits they will obtain tomorrow. Similarly, we usually prefer to delay costs. Another aspect is the **opportunity cost** that relates to each decision we make. When we choose one option, we lose the benefits that choosing another option would have brought us. If we pay EUR 100 in project costs at day 1, we have missed the opportunity to invest that amount into another target. If we can postpone the project payment to a later date, we can make the best available optional investment and earn some return on that investment. For example, our first option could be to pay EUR 100 in project costs today or alternatively we could pay EUR 110 in project costs a year from now, make another investment worth EUR 100 today and earn EUR 5 on the investment during the year. In that case, we would be better off to pay the project costs today and reject the alternative investment. However, if the return on alternative investment were EUR 15, it would be sensible to postpone the project cost payment, make the investment, and enjoy the extra EUR 5 in our pocket in a year's time. Correspondingly, if we receive EUR 100 in project benefit today, we could invest it and expect to earn a return at some rate. Hence, we would need to receive more than EUR 100

in project benefit later to be better off. The basics of discounting costs and benefits to present values is briefly explained in text box 11. These notions about the time value of money are not related to inflation, but inflation must be considered in CBA calculations.

COSTS AND BENEFITS IN PRIMARY AND SECONDARY MARKETS

CBA analysts decide whose costs and benefits are acknowledged. If a studied phenomenon impacts people who are not regarded to have a standing, such impacts are not included in the analysis — which is good to remember when making decisions based on analysis results.

CBA includes costs and benefits that occur in **primary markets**, which are directly impacted by the phenomenon. The studied project or policy can also impact **secondary markets**, which are influenced by changes in primary markets. Such indirect effects are usually ignored in CBA.

As a simple example, an increase in hunting licence prices reduces the demand for hunting licences — a change in primary markets. As a result, the demand for accommodation or other **complements** decreases. Additionally, the demand for other recreational activities and other **substitutes** to hunting may increase. Changes in the demand for complements and substitutes are regarded as changes in secondary markets.

If a studied phenomenon does not cause price changes in secondary markets, the analysis of primary market impacts appropriately captures the total impact. In contrast, if a secondary market faces price changes due to the phenomenon, the costs and benefits in the secondary market should also be analysed. This is often a daunting task. Fortunately, the price changes in secondary markets can often be regarded as minor shifts and ignoring them will therefore not distort the analysis results too much. If secondary market impacts are considered so relevant that they cannot be disregarded, the total economic impact can be estimated with general equilibrium models, for example (see chapter 3.5).

NET PRESENT VALUE AS A RESULT AND A DECISION RULE

CBA results express the net present value (NPV) of the policy or project in monetary terms. In NPV, all project or policy costs at their present value are subtracted from the total present value of benefits. The decision rule is to select the alternative that has a positive NPV (i.e. benefits are larger than costs) or, if multiple alternatives exist, the one that has the largest positive NPV. Otherwise, the recommendation is to continue with the current state.

At times, a **benefit-cost ratio** is suggested as the applicable decision rule. If the alternatives differ significantly in scale this rule may lead to misguided recommendations. Another problem arises if some impacts can simultaneously be treated as costs and as negative benefits. For example, the expansion of hunting tourism activities may reduce some residents' benefits, which can be regarded as a cost or a negative benefit. Regardless of how such impacts are treated, the recommendation will be the same if NPV is used as the decision rule. However, the treatment choice influences the cost-benefit ratio, which may ultimately influence decision recommendations.

Another suggested decision rule is the **internal rate of return** (IRR), which expresses the discount rate that leads to zero NPV. IRR is an appropriate criterium if the current state only has one alternative. Then, the rule is to adopt the alternative if its IRR is greater than the selected social discount rate. In other words, if the project yield exceeds the return

achievable through other projects, it should be accepted. IRR as a decision rule may lead to inappropriate recommendations if the policy is selected from two or more alternatives that are different in size or if it is impossible to determine a unique IRR for each alternative. However, IRR calculations can provide helpful additional information about the alternatives, but they are not always suitable to use as decision rules.

CBA PROCESS PHASES

The CBA process begins with determining which alternative projects (or policies etc.) to evaluate. The alternatives include at least the analysed project and the counterfactual project. For example, the counterfactual project describes the current situation that would continue if the analysed project was not implemented. The number of alternatives increases readily, which extends the calculation resource needs and complicates comparisons between alternatives. Deciding on the scope of analysis at an early date is therefore crucial. Practical constraints usually restrict the analysis to only covering options that are more closely related; it is uncommon to compare policies under various policy domains, for example. Such limitations naturally hamper the decision makers' possibilities to make overarching conclusions based on CBA results.

TEXT BOX 11. EXTRA: NET PRESENT VALUE

In CBA, all costs C_t and benefits B_t are discounted to their values at the present day, i.e. present values *PV*. For each cost and benefit item, *t* denotes the year when they occur. The total project (or policy) life is *n* years long. *PV(B)* expresses the sum of all benefits over the project life and similarly *PV(C)* expresses all the costs. The social discount rate *s* expresses the society's time preferences. Net present value *NPV* indicates the difference between costs and benefits that are discounted to present values.

$$PV(B) = \sum_{t=0}^{n} \frac{B_t}{(1+s)^t}$$

$$PV(C) = \sum_{t=0}^{n} \frac{C_t}{(1+s)^t}$$

$$NPV = PV(B) - PV(C)$$

The process continues by defining whose benefits and costs are relevant. For instance, the analysis may cover people living in the municipality where a project is implemented, people living in the surrounding region, governmental actors, or even the region's tourists affected by the project.

The next step includes identifying all the physical impacts that the projects cause to those who have standing in the analysis (as decided in the previous phase) and defining whether those impacts are costs or benefits. Sometimes impacts can be benefits to some stakeholders and costs to others. For example, increasing hunting activities may impede other recreational opportunities. In such cases, both impact types can be considered separately in the analysis. It is also worth noting that CBA result users may have a false understanding of the CBA method, thus influencing whether they regard a phenomenon as

a benefit or a cost. In addition to impact categorization, the analyst selects the indicators measuring the physical impacts.

Subsequently, the analyst uses indicators to quantify the impacts. CBA considers the costs and benefits that occur over a project's lifetime. Therefore, the impacts should be estimated for each time period, often for each year.

The impacts are monetized in the next step. Some impacts are readily expressed in monetary value but others are difficult or even impossible to monetize. For example, the monetary value of recreation can be contested. Nevertheless, several studies have estimated monetary values for various recreational activities such as hunting, wildlife viewing, or camping. Such values can be utilized in CBA. Basic economic valuation tools that may be useful in this CBA process phase are briefly presented in chapter 3.7.

As physical impacts occur at various points in time, the monetized costs and benefits are allocated to different dates. The next task is to discount all costs and benefits to present values (see text box 11). NPV is obtained by deducting the present values of costs from the present values of benefits. The alternative with a positive or the largest positive NPV is the one recommended for implementation.

Before presenting a recommendation, it is wise to perform a sensitivity analysis. The calculations entail many uncertain factors: uncertainty about the impacts, their monetary values, appropriate discount rates, or other aspects. As an example, the sensitivity analysis may reveal that the otherwise recommended alternative involves more risks than the other alternatives or that another, more effective alternative may exist that was not included in the original analysis.

The materials utilized in CBA are gathered from policy- or project-specific materials and from previous research and statistics. Costs, benefits, and other materials can be analysed using a spreadsheet or an application designed for CBA.

LIMITATIONS MUST BE RECOGNIZED

CBA usually receives two types of criticism. The first is more practical in nature: the considered costs and benefits and their valuation may be viewed differently. The second source of criticism is more fundamental. For instance, the appropriateness of offsetting some people's losses with other people's benefits has been questioned.

Performing a CBA sometimes requires the analyst to monetize human life, for instance, or the existence of some species. Economic valuation methods have been developed for such cases (see chapter 3.7). If the analyst does not want to attach monetary value to such impacts, they can use cost-effectiveness analysis or multigoal analysis, for example, to examine the phenomenon.

SUMMARY

- CBA evaluates the monetized benefits and costs that a studied project, policy, or other phenomenon would cause or has caused to people who are defined to have a standing in the analysis.
- NPV indicates the difference between costs and benefits that are discounted into present values.
- CBA results can be used to select which project or policies to adopt, for example. The decision rule is then to choose the alternative that has (the largest) positive NPV.

KEY TERMS

Complements. Complementary goods are used together. For example, hunting licences and hunting services can be regarded as complements in some context. In this case, if the licence price increases the demand for services may decrease.

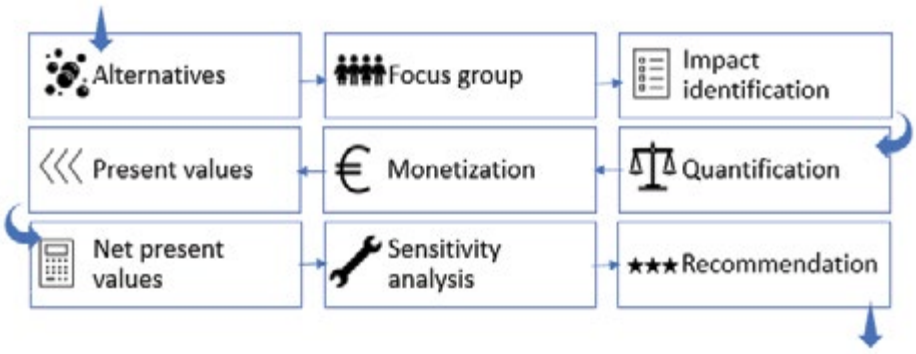
Net present value. Expresses the difference between costs and benefits that are discounted to present values.

Substitutes. Substitutable goods are regarded as similar products, fulfilling the same needs. For instance, some tourists may regard hunting and wildlife watching as substitutes. For such tourists, an increase in the price of hunting may lead to a growth in the demand for wildlife watching.

Time value of money. A certain amount of money today is worth more than the same amount in the future. One aspect of the concept relates to opportunity costs — the loss of benefits that occurs when you undertake one activity instead of an alternative opportunity.

ADDITIONAL MATERIAL

Boardman, A. E., Greenberg, D. H., Vining, A. R. & Weimer, D. L. (2018). *Cost-Benefit Analysis: Concepts and Practice*. 4th edition. Cambridge University Press.



3.7 OTHER METHODS

The previous chapters presented widely used economic methods, but the economics toolbox includes even more methods that can be used when evaluating the economic effects of hunting tourism. In this chapter, we explore some of those options.

MULTIPLIER MODELS

The economic importance of hunting tourism is even greater than the direct effects suggest, because of its strong link to other sectors of the economy. Some studies indicate that tourism connects to over 20 industries. Tourism affects the activities of hotels, restaurants, tour operators, travel agencies, tourism guides, information centres, transport companies including car rentals, car repair shops and gas stations, banks, exchange offices, cultural and historical objects, souvenir production, etc. The indirect impact of tourism is reflected, for example, in the development of retail, construction, consumer and food industries, education and advisory services, and agriculture and landscaping. This impact varies according to the form of tourism.

Multiplier models are used to reveal the indirect effects. Such effects are not obvious at first glance. Multipliers exist for tourism income, employment, investment, payroll, government spending, manufacturing and more. With their help, it is possible to determine how much a certain quantity will increase (e.g. employment in the tourism sector) if an input (usually visitor expenses) changes by an additional unit (e.g. 1 EUR). The income multiplier indicates the change in income from tourism, while the employment multiplier indicates an increase in employment, etc. Multiplier models are a useful tool for examining the extent of the role of tourism in economic development.

ECONOMIC VALUATION

The economic impact assessment necessitates the monetary valuation of various subjects. Sometimes valuation in monetary units is easy, for instance, if the researcher can use market prices as the measure. However, valuation may also be quite challenging. For example, if a potential hunting tourism opportunity affects other recreational activities, such as hiking or wildlife viewing, how much would their values change if hunting tourism activities were to expand?

The effects on nature and ecosystem services are often underestimated in economic evaluations because their monetary value is difficult to determine. Hunting tourism is closely connected with the natural environment. Reflecting on whether a studied hunting tourism activity has a relevant impact on ecosystem services is therefore important. What is the economic value of the change in ecosystem services caused by the hunting tourism activity? What is the economic value of the hunting possibility itself? Some economic valuation methods can capture such effects and hence make it possible to recognize these values in the decision-making processes.

Economic effects that are not represented in market prices can be explored using economic valuation methods. They are used to indicate how people value the subject in economic terms. Even though the subject has economic value, that value is not reflected in market prices because property rights regarding the studied subject are not clearly defined. For example, we cannot define who owns the genetic diversity of a game species in the same manner that we can define who has ownership of a hunting grounds.

Opportunity cost is a key concept in economics and economic valuation. It expresses how much a person is willing to sacrifice to obtain something. When the reader decided to use their time to read this guidebook, they forego the opportunity to use that time on some other activity. Correspondingly, the value of the economic activity or consumption possibility that a person is willing to sacrifice to gain some other benefit — such as an improvement in environmental conditions — describes the economic value of that benefit. Valuation results reveal the economic value that people are willing to pay for obtaining some benefit or the value that people are willing to accept for tolerating some harm. The approach emphasizes the value to people; the valuation does not define the "true value" of an ecosystem service, for instance, as that would be an impossible task.

Valuation tools are categorized as **revealed preference** or **stated preference** methods. Revealed preference methods rely on data that describe people's observed behaviours and indirectly reveal how they value the studied subjects. Stated preference methods use surveys asking people directly about the values they would designate to the studied subjects.

Hedonic price method and travel cost method belong to revealed preference methods. The **hedonic price method** builds on the idea that commodity price is the result of many influencing components. The goal is to define how much each component contributes to the market price. For example, the price of a property is affected by the main services, traffic levels, noise, air quality, etc. in the vicinity. The method involves statistical analysis and information about market prices. The **travel cost method** is founded on the notion that people need to act if they want to enjoy, for instance, nature hiking. These actions cost, and the costs are regarded as the value of the recreational activity. For example, tourists visiting a recreational park are asked about their consumption during the trip, and these survey data are statistically analysed to obtain the value of the services that the recreational park provides.

Contingent valuation and choice experiment method are categorized as stated preference methods. **Contingent valuation** utilizes survey data. The survey question defines the subject under valuation (e.g. an improvement in hunting opportunities) and the mechanism to finance the studied change (e.g. increasing licence fees). Respondents are then asked to say how much they are willing to pay and hence contribute to the implementation of the studied change. **Choice experiments** assume that the studied subjects consist of attributes that manifest at various levels. An attribute in the hunting context may describe, for example, the number of hunted grouses during a hunting day, and the levels may be low/medium/high. Attributes with various level options are combined into several mixes and the combinations are attached to a price. Respondents are asked to choose between the presented alternatives. The survey data reveal the respondents' willingness to pay for each attribute.

As the nature of the valuation techniques suggests, revealed preference methods describe effects that have already happened and stated preference methods describe effects that are happening or could happen. Time is not a particular issue in these methods. The focus is on the impact that is not reflected in market prices. In other words, the impact cannot be categorized as direct or indirect in the same manner as with other methods. The result variables express people's willingness to pay for the studied subject. The materials are collected with surveys or from statistics. The data are processed e.g. in a spreadsheet or with software for statistical analysis.

SUMMARY

- The economic consequences of hunting tourism-related phenomena can also be analysed using various other methods like multiplier models and economic valuation.
- Multiplier models examine the importance of tourism in economic development by revealing the indirect effect with a calculation of how much a certain quantity will increase (e.g. employment in tourism) if an input (usually visitor expenses) changes by an additional unit (e.g. 1 EUR).
- Various economic valuation techniques enable recognizing monetary values that are not reflected in market values, such as the economic value of recreation.

KEY TERMS

Ecosystem services. Benefits to people from ecosystems.

Opportunity cost. The value of the benefits sacrificed to obtain something.

ADDITIONAL MATERIAL

Ntibanyurwa, A. (2011). *The Income and Employment Multiplier Effects of Tourism: The Case of Rwanda*. Lambert Academic Publishing.

Champ, P. A., Boyle, K. J. & Brown, T. C. (Eds.). (2017). *A Primer on Nonmarket Valuation*. The Economics of Non-Market Goods and Resources. Springer Dordrecht. https://doi.org/10.1007/978-94-007-7104-8

3.8 METHOD COMPARISON

In previous chapters, the reader has been introduced to several methods utilizable for evaluating the economic impact of hunting tourism. As mentioned in chapter 2, input-output (I-O) models and computable general equilibrium (CGE) models are the most common (regional) economic impact assessment methods. The Nordic model is also often used in tourism-related impact evaluations. This guidebook additionally presents other popular methods that can be used to analyse economic impacts. In this chapter, we will compare the presented methods in relation to the aspects considered in chapter 3.1 and highlight some of the advantages and disadvantages of the methods.

'BEFORE' AND 'AFTER' EVALUATIONS. Statistical analysis, microeconomic optimization, certain valuation methods, and usually Nordic modelling concentrate on effects that have already been realized. The I-O method and CGE modelling can be used to perform both *ex ante* and *ex post* analyses. Likewise, cost-benefit analysis (CBA) can be conducted either to evaluate past or future events. If you are interested in understanding events that have occurred already, any of these methods may be of assistance. If your goal is to explore the differences between alternative future scenarios, I-O and CGE are most suitable for actual economic impact analysis and CBA for selecting the most efficient policy option.

TIME. Time does not play a role in certain methods. In CBA, costs and benefits are discounted so that they are presented in comparable units. The Nordic model, I-O models, and CGE models can all be utilized in static analysis, and I-O and CGE are suitable methods for dynamic studies. Time is one of the aspects that can be paid attention to when evaluating the reported studies: how it is acknowledged, how it affects the results, and to what extent can the various studies be compared.

DIRECT AND INDIRECT IMPACT. Most of the presented methods can only show direct impacts. If the aim is to acknowledge indirect and induced effects as well, the I-O and CGE models are able to do so. Although I-O and CGE take a similar approach to impact assessments in many regards, they also have clear differences. We can therefore anticipate that, in many cases, the employment impacts produced with I-O are larger than the corresponding CGE results, for example. This is because CGE models often consider resource constraints at a more in-depth level than I-O models do.

RESULT VARIABLES. As previous chapters have demonstrated, each method offers different results. For instance, if the reader is interested in understanding the importance of hunting tourism to regional companies, they can rely on existing statistics in part, examine the results that have been produced with the Nordic model based on an enterprise and/or customer surveys, or they can explore I-O and CGE results to find the impact considering the multiplier effects.

DATA. The quality of the evaluation results can only be as high as the quality of the used data. When you evaluate the presented assessment results and compare studies, the used research data are one of the key aspects to inspect. Quite often, optimal data are not available and hence the researcher must use substitutive materials. For instance, the exact information on hunting tourists' consumption behaviours in a studied region may be unknown, so the researcher may have used similar data collected from another region. The assessments usually employ survey data or expert views on the subject. Whether the survey respondents form a representative sample of the studied population or the experts have recognized all the relevant viewpoints can then be judged.

APPLICATION. Most of the presented methods can be applied by utilizing a spreadsheet, for example (e.g. Excel). CGE modelling requires more advanced software along with access to model codes, both of which are available with licences. Each method has its distinctive features that must be understood when applying the method. Moreover, how difficult an assessment process becomes partly depends on the posed research question. However, some models appear to be more challenging to apply. For example, the user needs to have basic knowledge of programming to use CGE calculation software.

ASSUMPTIONS. A common assumption is that past development may also be used to describe future development. Even methods that are used to assess the economic effects in future scenarios rely on knowledge of past economic structures and developments and assume that the economies will not face significant structural changes. In many cases, such assumptions are acceptable. They may, however, cause problems if the study span extends to the more distant future, which may be the case in studies that consider the economic impact under climate change, for example.

Overall, economic evaluation methods can be helpful tools for assessing the indicative economic impacts of various issues or changes in the economy. However, the assumptions and the quality of the used data, for example, influence result reliability. All methods have their advantages and disadvantages, as presented in Table 2. Which method is best suited for each case depends on the case, information requirements, data availability, and the researcher's expertise. It is also important to remember that the results obtained with different methods uncover partly different information. Therefore, knowledge of methodological differences will help in understanding the results of various evaluations.

Table 2. The advantages and disadvantages of methods evaluating economic effects.

Method	Advantages	Disadvantages
Descriptive statistics	+ exploit existing data + easy to use + wide variety of variables	- only considers direct impacts - only past impacts can be assessed
Microeconomic optimization	+ also suitable for making future predictions in addition to assessing current/past impacts + possibility to obtain analytical results with limited empirical data	- only considers direct impacts - includes several assumptions/simplifications
Nordic model	+ flexible + easily applicable	- mainly considers direct impacts - may face data challenges (e.g. costs and quality)
Input-output	+ possibility to assess past and future impacts + also considers multiplier effects + also suitable for dynamic studies + several variables to report	- do not consider resource constraints - rather data-intensive - include several assumptions/simplifications
Computable general equilibrium models	+ also considers multiplier effects + possibility to assess past and future impacts + wide variety of variables + also suitable for dynamic studies	- data-intensive - require extensive knowledge - require software licences - include several assumptions/simplifications
Cost-benefit analysis	+ possibility to assess past and future projects + possibility to rank options with clear rules	- some difficult-to-value benefits and costs - may exclude some costs or benefits
Multiplier models	+ considers indirect effects	- do not consider resource constraints - include several assumptions/simplifications
Valuation	+ enables recognizing monetary values that are not reflected in market values	- values the studied change or attributes, does not assess the wider economic impact of the phenomenon

3.9 DATA EXAMPLES

The first research step is to formulate the research problem and determine the research goals. The aim of the research may be to 1) uncover facts and descriptions of the current situation, 2) formulate and verify certain hypotheses and theoretical generalizations of the findings, or 3) compile practical recommendations from the findings or predict further the possible development.

The next step is to reflect on what data are needed for solving the research problem. The data can be either **primary** (first hand data gathered by the researcher) or **secondary** (describes what has earlier been discovered on the topic and is collected by someone else than the researcher) data. The data obtained, for example, from the current field survey are referred to as primary. Obtaining primary data may be time-consuming and costly, but the obtained data correspond better to the purpose. The existence of secondary data, on the other hand, may help reduce costs. Secondary data are quickly available and relatively inexpensive but may not be complete or entirely relevant to the research problem.

The following questions require answering during the preparation phase of primary data collection:

- What will be the statistical unit used in the study? How is the basic set of all statistical units defined?
- How will the sampling from this data basic set be made? What will be the size of the sampling?
- How can each unit be contacted?
- How will the information obtained be gathered and recorded?
- How can the investigated phenomena be measured, what scales can be used for this, and what will be the variables?
- What errors and distortions occur during data collection and how can they be prevented?

The information source for primary information is often a specific person, and the basic data set usually consists of a large group of people, i.e. a population. The survey unit can be households, institutions, companies, etc. Modern statistics allow surveys to be conducted by only using a sample, and if the principles are followed the results can be generalized to the whole population. Therefore, a sample survey can provide quality information also about a population. The sampling is typically made as a random sampling meaning that the respondents for the survey are randomly selected from the population.

Primary information in the field is typically obtained through different types of questionnaires. Information retrieval tools and processes should be valid and reliable. We consider the detection procedure to be **valid** if the questionnaire a) detects what was intended and b) the data do not contain systematic errors. A **reliable** procedure, on the other hand, provides data free of random errors and distortions, and therefore identical data can be obtained from repeated detections. A questionnaire can be fine-tuned with a pilot survey, i.e. testing the whole process of data collection on a small sample of respondents. In terms

of questionnaire content, this means verifying whether the respondent will understand the question, will be able to answer it, and will be willing to answer.

The questions asked can be sorted by order. The order of the questions is given by their purpose in the questionnaire and their continuity. Introductory information should serve to clarify the purpose of the survey, to establish contact with the respondent and to raise their interest in participating in the survey. It is useful to combine a larger number of questions worded in the same manner and with the same response choices into a so-called question battery. Identifying questions (e.g., gender, age, occupation, etc.) should be included at the end of the questionnaire.

Questions by purpose:

- Substantive issues — questions focused on the survey's particular problem
- Auxiliary questions — help conduct the interview in a desirable manner
- Branching questions — used to divide the interviewees into certain groups, which further answer different questions
- Filtering questions —identify people who can provide certain information

Questions by content:

- Direct questions — the purpose of the question is obvious, and the respondents knowingly answer what they are asked
- Indirect questions —what is actually determined by question is not entirely clear

Questions by form:

- Closed questions
- Open questions

Quantitative processing methods require closed questions, where a respondent chooses answers from a certain range of two (alternative questions) or more (selective questions) options. The individual response alternatives to closed questions should, from a certain viewpoint, exhaust the entire problem, should not overlap, and should follow only after the question has been asked. Open-ended questions allow the respondent to formulate an answer independently. Verbal answers to open-ended questions usually require subsequent categorization if quantitative processing methods are to be used.

Obtaining information through a questionnaire survey is often very problematic in terms of willingness to answer questions. Recently, people have been overwhelmed by the number and complexity of various questionnaire surveys, which reduces their willingness to respond. Issues related to income, spending, or the distribution of consumption-related expenditures are concurrently very unpopular. It is therefore important, in the introductory part, to clearly explain the importance and purpose of the data collection and its evaluation and subsequent use. Only a respondent who considers the survey beneficial, reasonable, and does not feel that participating will lead to any possible negative consequences is willing to respond. It is concurrently necessary to emphasize that the survey is completely anonymous and that results will be evaluated as a whole. It is also possible to share research results with respondents.

TEXT BOX 12.
EXTRA: A DATA COLLECTION EXAMPLE FROM THE CZECH REPUBLIC

Two questionnaire surveys were compiled in the Czech Republic. The first was distributed among domestic hunters and the second among foreign hunters. Data collection among hunters took place for 213 days from 10 July 2021 to 8 February 2022 and was conducted using the CAWI method via the SURVIO platform. Additional data collection took place mostly during hunting events and at hunting grounds, where paper versions of the questionnaire were stored. The data had to subsequently be re-entered into the SURVIO system at a later date.

A total of 2 401 respondents visited the questionnaire for domestic hunters via the web interface, and a total of 1 081 hunters completed the questionnaire, yielding a 45% of overall completion rate. The questionnaire for domestic hunters contained a total of 33 closed and open questions, while the questionnaire for foreign hunters contained 28 questions. Hunting providers with foreign clients participated in the data collection. Because of the decrease in foreign hunting guests in 2021 due to the COVID-19pandemic, the number of respondents was only 163. Examples of questions related to the economic impact assessment of hunting tourism are given in Appendix A.

Of the domestic respondents, 87% were males, most often aged 41–50 years (27% of all respondents). 56% of respondents had a secondary education and 38% had a university degree, most often working as employees in the private sector (35%). 16% of respondents were private entrepreneurs, 18% were pensioners, 19% were public sector employees, 6% were students, and 6% belonged to other groups. The monthly gross income of the respondents ranged between CZK 15 200 and CZK 35 400 (44%), i.e. between the minimum and average wage in the Czech Republic. Another larger group consisted of respondents with a gross income between CZK 35 400 and CZK 70 800 (37%), i.e. the average wage and twice the average wage in Czech Republic.

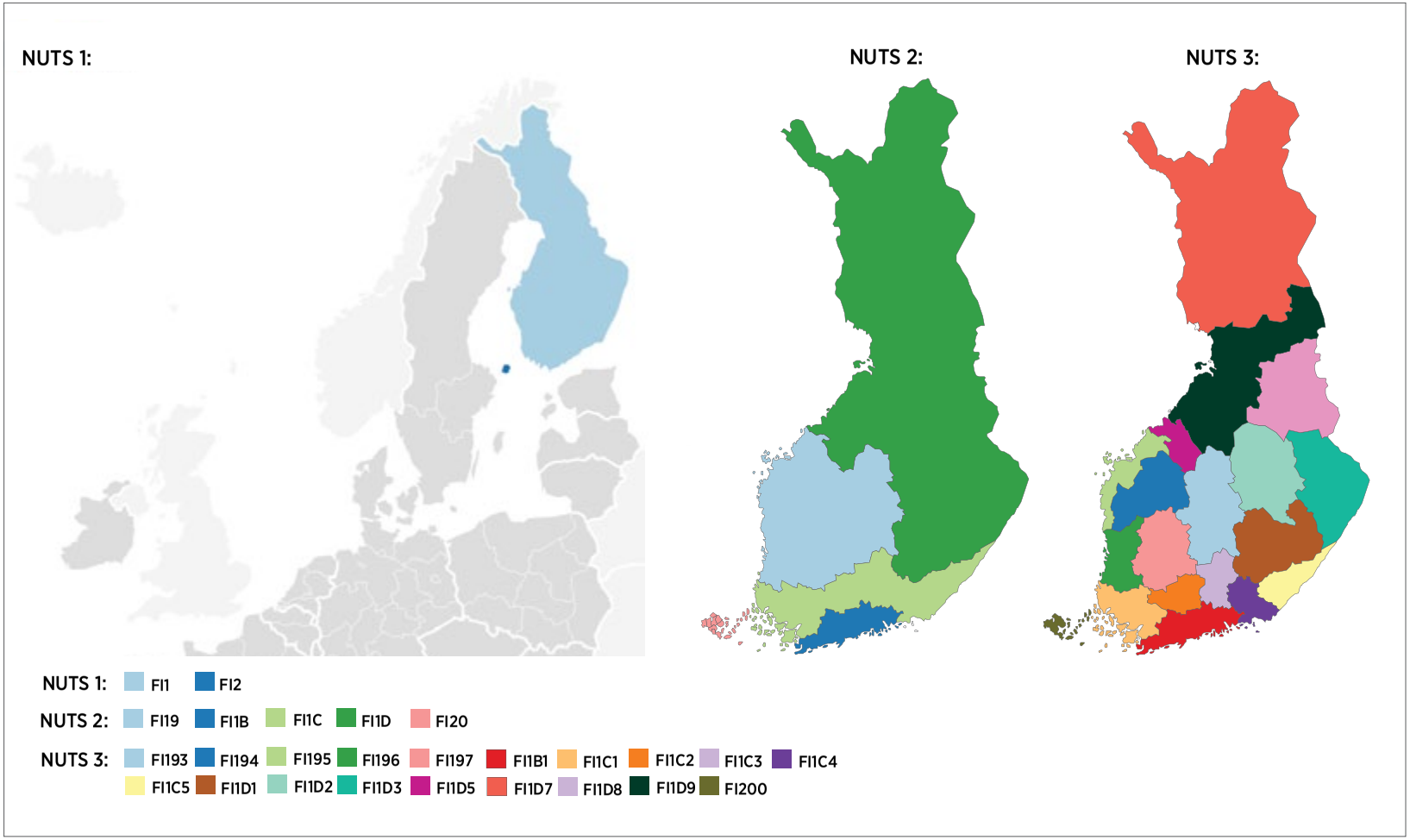
Of the foreign respondents, 92% were males, most often aged 51–60 years (35% of all respondents). 45% of respondents had a secondary education, 54% had a university degree, the majority lived in places with 5 000–10 000 inhabitants, and most worked in wholesale and retail (17%), forestry and fishing (15%), or other services (14%). The monthly gross income of the respondents was more than EUR 8 000 (14%), other larger group consisted of respondents with a gross income in the range of EUR 4 500–5 000 (13%), EUR 3 500–4 000 (13%), and EUR 4 000–4 500 (12%). The largest segment of respondents came from Austria (25%), followed by Germany (19%), and Slovakia (13%). Respondents from the Netherlands, Italy, Russia, Norway, Finland, France, Belgium, Denmark, the United Kingdom, Poland, Hungary, Russia, and the USA participated to a lesser extent in the questionnaire survey.

3.10 REGIONALITY IN ECONOMIC IMPACT EVALUATION

Economic impact evaluation can be implemented at various spatial settings. Some studies may concentrate on impacts in municipalities or other smaller-scale units, such as provinces, while others may assess the impact on national economies or even wider regions. In each assessment, the studied region is defined based on the research question. Moreover, the research method along with the available data influence the geographical definition of the study area. For example, if a study is conducted with a method that utilizes survey data, the researcher can define the relevant region and address the survey to the population that meets the defined regional criteria. If the materials are mainly derived from existing statistics, the regional definition should follow official borders. Next, we will introduce you to the system that is used in regional statistics. The main purpose of this chapter is to explain the classification system and hence help to collect data from existing statistics such as national and regional accounts.

In the EU, regional statistics utilize the NUTS classification (Nomenclature of Territorial Units for Statistics). Similar territorial classification systems are used in other countries. For example, the OECD regional database uses a territorial classification that corresponds to the NUTS classification. The economic territory of the EU is divided into several regions to enable comparisons of, for example, the socio-economic situation in various regions. The classification has three hierarchical levels, and the region borders utilize the national administrative units. NUTS level 1 corresponds to the major socio-economic regions. NUTS 2 refers to basic regions and NUTS 3 to small regions. At NUTS level 1, the regional population is between 3 and 7 million people. The population range is 800 000–3 000 000 people for NUTS 2 regions and 150 000–800 000 for NUTS 3 regions. The NUTS classification is complemented with Local Administrative Units (LAU). LAUs are lower-level regions such as districts and municipalities.

To illustrate the hierarchical NUTS regions, picture 2 presents the Finnish NUTS regions. Finland has two major regions at NUTS level 1: Mainland Finland and Åland (an island group between Finland and Sweden). The country is divided into five regions at NUTS 2 and into 19 regions at NUTS 3.



Picture 2. Illustration of a regional classification in statistics.

4 THE POTENTIAL AND SUSTAINABILITY OF HUNTING TOURISM

The everyday activities of humans have intensive impacts on the environment and have always changed and adapted nature to meet human needs, especially when the goal is to secure existence. Nowadays, several game species are among the natural resources that have become endangered. The positive impact of hunting in preserving ecological balance is reflected in the protection of hunting areas, improvement of wildlife biotopes, harvesting and game protection, reintroduction of species, etc. Poaching may become a destabilizing factor, as it causes uncontrolled and unplanned shooting and/or ignores hunting ethics. Similar negative effects have contributed to the near-extinction of certain game species. Any excessive, unplanned, and uncontrolled exploitation of wild animals leads to disruptions in ecological balance.

Hunting tourism is a very delicate segment of the nature tourism sector, as it raises several diverging attitudes, opinions, and sometimes causes conflicts between interest groups. To develop hunting tourism sustainably, the current state of and problems within hunting and the hunting tourism sector need to be understood and must be viewed from an ecological, social, and economic position. The sustainable development of hunting tourism allows its optimal implementation and progress without degrading and exhausting the natural factors on which it is based, primarily wild animals and hunting grounds. However, hunting tourism must be developed in a way that does not threaten ecological and social sustainability. Understanding local communities' needs, landowners, nature tourism professionals, local hunting cultures, local hunters, and public attitudes towards hunting tourism is very important for successfully developing the hunting tourism sector.

Successful hunting tourism development is conditional to abundant game resources. **Wildlife viewed as a natural resource for hunting tourism is not just a simple sum of species and individuals**, but a complex set of various elements that simultaneously form an important component of biotopes, bioeconosis, and ecosystems, along with the biodiversity of each country and nature in general. Trophies, meat, skin, and other parts of the shot game are economically relevant elements of hunted game, which are cashed in through hunting and hunting tourism. Hunted game is, therefore, the main resource for hunting tourism.

Hunting tourism, as an activity, is a specific segment of the tourist economy, and natural resources are directly consumed during hunting tourism (hunting tourism leads to a form of exploitation and to immediate physical destruction of the basic natural resource) unlike during most other selective forms of tourism (when utilizing natural spaces to meet needs without their physical destruction). However, from an ecological viewpoint, well-planned and organized hunting can be very useful for nature protection. Well-managed hunting and hunting tourism may also have an important conservation role. Cooney et al. (2017) highlight several positive impacts from hunting tourism, such as incentives for landowners to conserve or restore wildlife on their land, revenue increments allocated to wildlife management and conservation, and reductions in illegal wildlife killings and

human–wildlife conflicts**.** However, the conservation role of hunting is limited by a series of problems, such as excessive game culling, failure to allocate sufficient benefits to communities, income leakage, and corruption.

The sustainable development of hunting implies that all forms of nature management continuously ensure the originality of habitat conditions and the diversity, abundance, and quality of wild animals that form the resource basis for meeting the diverse needs of present and future generations — recreational, ecological, economic, scientific, etc. Sustainable hunting management is reflected through the rational management of resources and less exploitation of wildlife, through the preservation of biodiversity, and the production, breeding, and protection of wild game.

The principle of **ecological (biophysical) sustainability** of hunting tourism implies maintaining the biodiversity and genetic diversity of wild animals, and protecting and improving wildlife habitats. This improvement includes afforestation and creating green patches in hunting grounds, protecting wildlife from direct and indirect negative impacts, the introduction or reintroduction of game species, and restricting hunting in terms of place, time, hunting methods, or game species. The ecological sustainability of hunting tourism is based on the necessity to ensure the optimal development and maintenance of vital ecological processes, biodiversity, and natural resources. From the viewpoint of ecological sustainability, it is also important to account for the impact of game on vegetation and to prevent excessive game damages. Therefore, hunting tourism potentials that exist in a particular area can be economically exploited only if their exploitation is planned and implemented solely based on ecological sustainability.

The economic sustainability of hunting and hunting tourism implies that the realized income from hunting tourism is returned to the hunting ground and invested into the management and protection of wildlife, nature conservation, and improvement of habitat conditions. Part of the realized income is invested in the sustainable development of hunting areas through the procurement of food, medicines and equipment, and through the improvement of gamekeeper services and hunting facilities, sanitary veterinary measures, and other protection activities (Prentović, 2014). The economic principle of sustainability in hunting tourism comprises the belief that hunting tourism must not be exercised to permanently deplete resources.

Social sustainability in tourism implies local cultural sustainability and equality between stakeholders, with shared benefits and burdens. All stakeholders must additionally have the opportunity to participate in decision-making. Support from the local community and residents plays an important role in the success of tourism development. It is commonly implied that residents would show greater support to tourism development if they were to benefit from it. Social sustainability in the concept of hunting tourism implies the implementation of hunting and hunting tourism activities without violating the cultural and traditional values of local communities and local hunters and following the norms and standards of hunting ethics. Support from a local community is one of the main conditions for success when developing all types of tourism. The local population forms its opinions on the economic, social, cultural, and ecological effects of tourism in their community and environment. Hunting is an important part of cultural heritage, and the local hunting culture may significantly influence local opinions towards hunting tourism development. Using existing hunting heritage and culture as a starting point for developing tou-

rism does not interfere with local customs and traditions. This allows maintaining social relations instead of forcing a different model of hunting into the local culture. There should be an understanding of the effects of hunting tourism on land use and hunting possibilities.

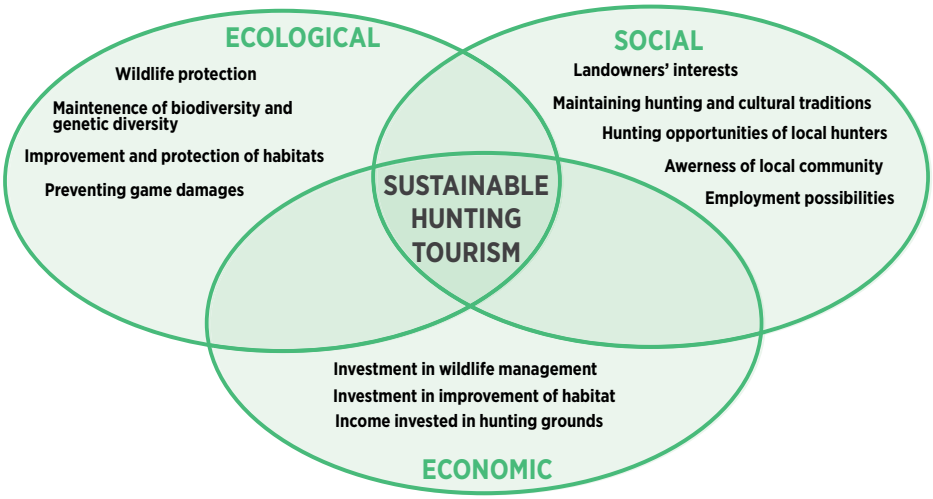
The social component of sustainable development implies respecting the needs and well-being of persons who are direct or indirect stakeholders of hunting tourism: hunters, landowners, and non-hunters. According to Vallance et al. (2011), social sustainability has three strands: 'development sustainability' (basic needs, the creation of social capital, justice), 'bridge sustainability' (changes in behaviour to achieve biophysical environmental goals), and 'maintenance sustainability' (the preservation of sociocultural characteristics). Therefore, social sustainability in hunting tourism also refers to:

- offering employment possibilities;
- providing and sustainably preserving natural resources for future generations to benefit from and to meet their own existential needs;
- influencing residents' behaviours to support ecological sustainability and awareness of the need for nature protection, and influencing the public view of hunting tourism;
- developing the hunting industry in such a way that it provides full social prosperity through social integration, tolerance, and solidarity;
- maintaining and not disturbing hunting and cultural traditions, hunting practices, and preferences of the local community and preserving traditional and moral values while developing hunting tourism.

Hunting tourism activities that fail to address social issues may jeopardize the acceptability of this consumptive form of wildlife tourism. The development of hunting tourism is mostly affected by residents' ethical values concerning wildlife utilization. On the other hand, it is also affected by the attitudes of local hunters towards hunting tourists. Studies have shown that local hunters have a positive attitude toward developing hunting tourism as a possible means for revitalizing rural areas. However, local hunters also have concerns because they believe that hunting tourism will bring increased hunting fees, limit the possibility of hunting activities due to hunting tourists, and that tourism may lead to overhunting and become a threat to traditional hunting values. In Northern Europe in particular, the development of hunting tourism is currently most strongly affected by residents' ethical values concerning wildlife utilization but also by the attitudes of local hunters towards hunting tourists. Locals often do not mind hunting tourism in their area or in general, as long as it does not decrease their hunting possibilities. Understanding the attitudes of local hunters is therefore very important, as it is a key element in the social sustainability of hunting tourism development.

The ecological aspects of hunting tourism imply conserving and improving habitats and game species diversity, including their genetic diversity. Economically sustainable hunting tourism mostly deals with securing capacities for producing returns and the profitability of hunting. However, full ecological potentials for hunting tourism will not be utilized if socio-cultural aspects are not considered, which is why social sustainability has become one of the important aspects in hunting tourism development. Planning and implementing hunting tourism activities should consider the interests of hunters, lando-

wners, and other local users and interest groups. Also, the relationship between hunters and non-hunters, the welfare of wildlife, and ethical and cultural aspects related to hunting are of great importance. This is mostly the case because social aspects may limit hunting tourism development more than ecological aspects, and this is difficult to evaluate simply by examining economic figures. In addition to economic aspects, and to maximize the economic impacts of the hunting tourism sector, hunting tourism activities should be implemented in a way that ensures equal ecological and social sustainability.



Picture 3. Three dimensions of sustainable hunting tourism.

ADDITIONAL MATERIAL:

1. Baker, J. (1997). Trophy Hunting as a Sustainable Use of Wildlife Resources in Southern and Eastern Africa. *Journal of Sustainable Tourism*, *5*(4), 306-321. https://doi.org/10.1080/09669589708667294
2. Bauer, J. & Herr, A. (2004). Hunting and Fishing Tourism. In Higgenbottom, K. (Ed.), *Wildlife Tourism: Impacts, Management and Planning* (57-75). CRC for Sustainable Tourism. Common Ground Publishing, Brisbane.
3. Vallance, S., Perkins, H. & Dixon, J. (2011). What is social sustainability? A clarification of concepts. *Geoforum*, 42(3), 342-348. https://doi.org/10.1016/j.geoforum. 2011.01.002
4. Frostner, M., Reimoser, F., Lexer, W., Heckl, F. & Hackl, J. (2006). *Sustainable Hunting - Principles, Criteria and Indicators*. Umweltbundesamt GmbH, Spittelauer Lände 5, 1090 Vienna, Austria.
5. Matilainen, A. & Keskinarkaus, S. (Eds.). (2010). *The Social Sustainability of Hunting Tourism in Northern Europe*. (No. 59). University of Helsinki, Ruralia Institute, Reports No. 59. https://helda.helsinki.fi/handle/10138/24722

5 FINAL THOUGHTS

This guidebook aimed to introduce the evaluation of economic impacts of hunting tourism at various regional levels. The focus was to present evaluation methods that can be used to answer questions related to economic effects and to demonstrate what types of indicators can be formed with the various methods. Concurrently, the purpose was to provide the reader with basic knowledge of economic evaluation methods and consequently to support understanding, evaluating, and interpreting research results that present the economic effects of hunting tourism and how it affects the surrounding economy.

We hope that the reader now has an overview of

- the economic impact that hunting tourism can create
- the methodological options available for studying the impact
- the resources needed for impact analysis
- the results provided by the analysis tools, and
- the assumptions necessary for conducting impact evaluations.

With this knowledge the reader will be able to decide how strong conclusions can be drawn based on the research findings or to what extent different studies are comparable. However, in summary, we would like to remind you once more of the following issues:

- The first task is to define an understandable and concrete research question based on holistic understanding of the studied phenomenon.
- Make use of existing research before starting your own. There are plenty of existing data and some results that can be utilized.
- Your results are only as reliable as your data allow. Keep this in mind when interpreting the results of economic calculations
- Economic calculations often provide an overview of the impact levels. In many cases, the direction of economic impact is more important than actual exact Euro figures.
- All calculations entail certain assumptions regarding both the data and the calculation method; familiarize yourself with them before making decisions based on the results.
- It is important to understand which changes and effects are significant enough to make e.g. investment decisions.
- The relative importance of a discovered economic impact depends on the value base of the interpreter.
- Remember that impacts may vary between stakeholders — a broad impact may be rather small while the impact on individual economic actors may be significant, or the general impact may be positive but some actors may face economic losses due to the considered change.
- All in all, economic impact evaluations can support decision makers, but it is wise to remember the limitations of each method and study.

If the reader is interested in studying the presented methods in more detail, further information can be found in the additional materials that we have suggested in the method chapters. We also welcome you to familiarize yourself with the other outputs of the HUNTOUR -project, which offers diverse knowledge of hunting tourism.

We hope that this guidebook helps the reader make well-informed and factual decisions for developing hunting tourism.

APPENDIX A:
Examples of potential questions and results for data collection

Always remember that the questions required depend on the data needs of each case. Also remember to keep the questionnaire as short as possible to ensure high-quality responses. Following are some examples of potential questions to hunters and hunting tourism companies, and examples of the results that a questionnaire may provide.

EXAMPLES OF POTENTIAL QUESTIONS FOR HUNTERS

- What area did you visit for hunting?
- For how many days was your hunting permit valid?
- How many days did the whole trip last?
- How much money did you spend during your trip? (separately outside and within the region where your hunting destination/ground exists)
    - Travel costs (petrol, tickets, taxis, other possible travel costs)
    - Food and groceries
    - Cafes and restaurants
    - Accommodation
    - Hunting services, e.g. guiding, bag and trophy handling, fees; or a hunting package
    - Other services such as sauna, fishing, wildlife safari, etc.
    - Other costs, souvenirs, etc.
- Please estimate how much money you spend on hunting tourism within one year in your own country ____ € Abroad ____ €

EXAMPLES OF POTENTIAL QUESTIONS FOR HUNTING TOURISM COMPANIES

- What is the company's total turnover?
- What proportion of the company's income comes from hunting tourism?
- What was the company's profit in the last annual account?
- Please state the proportion of the following expenses related to the company's turnover.
    - Labour costs
    - Accommodation
    - Food
    - Hunting licences
    - Hunting land lease
    - Insurance

- Subcontracting
- Office costs
- Investments
- Purchases from abroad
- Domestic purchases
- Marketing
- Other (what?)

- What is the price of the most popular type of hunting activity?
- What proportion of your customers are foreigners?
- How many customers a year visit your company for hunting?
- How much does an average customer spend on your company's services per trip?
- How much would you estimate a typical customer spends on other services and products in the area per day during their visit?
- What is the number of personnel in your company in person-years?
- How many hunting days does an average customer spend as a client in your company per year?
- How much is your company planning to invest in hunting tourism in the next 5 years?
- What is the company's next investment target?

EXAMPLES OF POTENTIAL QUESTIONS FOR HUNTING GROUNDS

- How large is your hunting ground?
- Which game species are bred in your hunting ground?
- Number of employees working in the hunting ground

_____

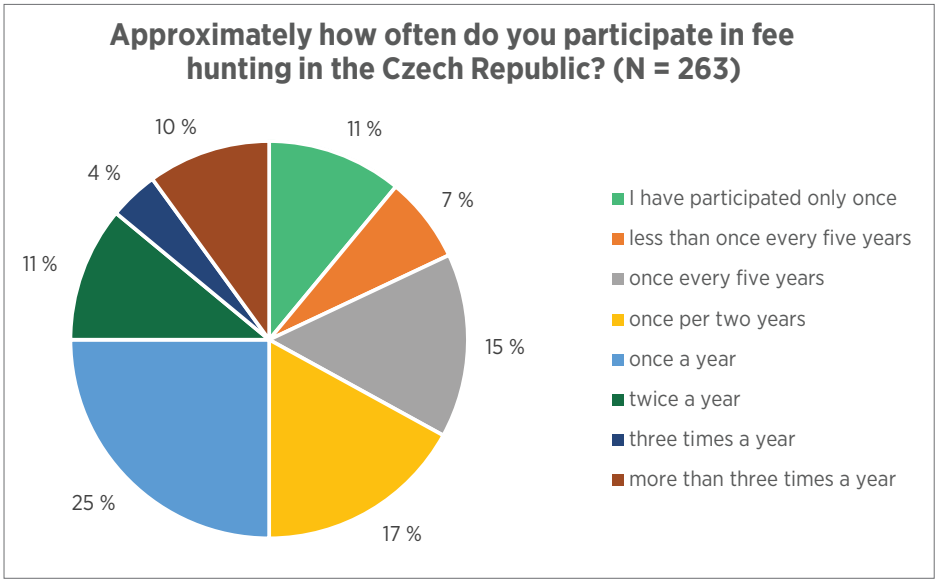
- Are the game species in your hunting ground also hunted through hunting tourism activities?

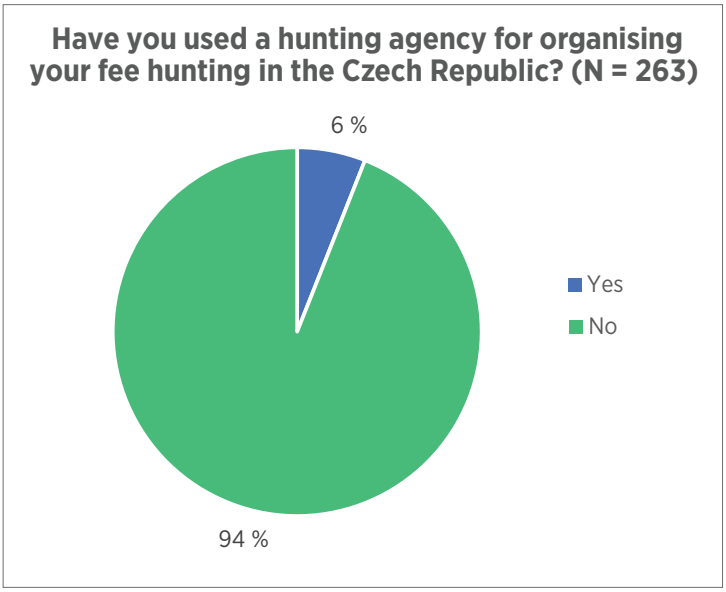
  a) Yes b) No

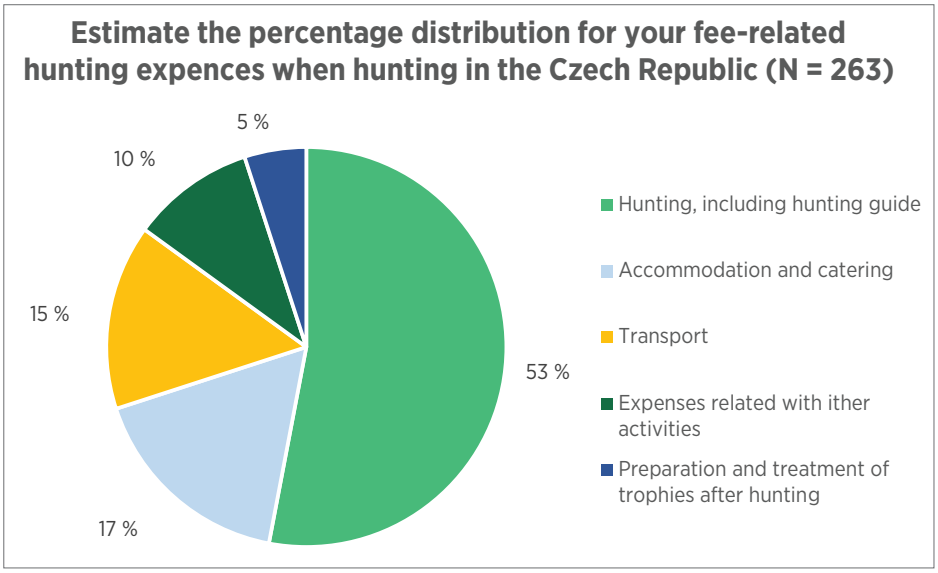
- Which tourist hunter group visits your hunting ground more?
  - foreign tourist hunters
  - domestic tourist hunters
  - both groups equally
- From which countries do you have foreign tourist hunters come in from?
- How many tourist hunters visit your hunting ground annually?

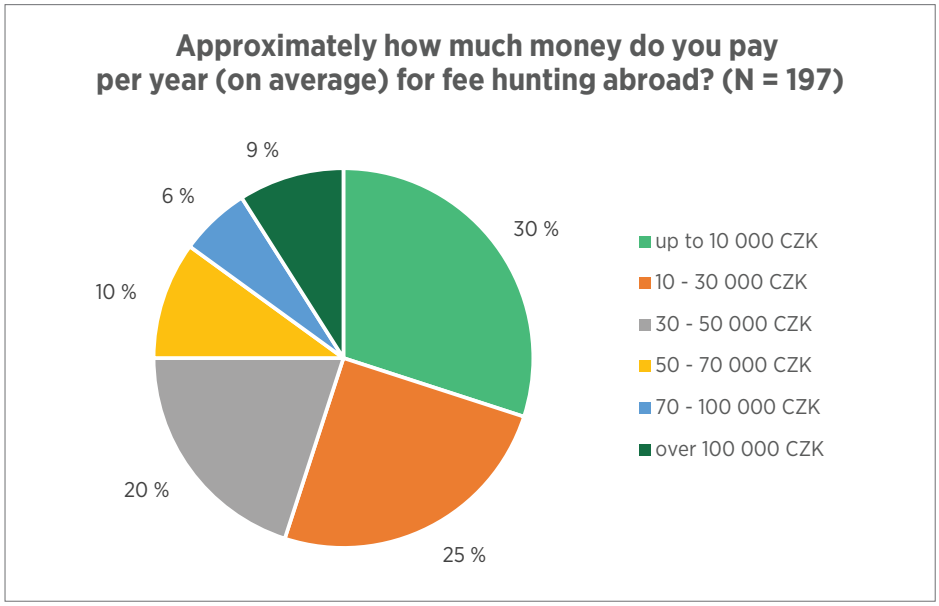
- Evaluate the average annual spending of your hunting ground on the following elements:
  - Game fees
  - Employee costs
  - Hunting ground lease
  - Game nutrition (food, salt, medicines...)
  - Cost for restoring some game fund
  - Costs of maintaining the accommodation capacities and offices
  - Construction and maintenance of hunting-technical facilities
  - Maintenance of off-road vehicles
  - Costs for purchasing or maintaining equipment
  - Insurance
  - Costs for promotional activities of the hunting ground
- Evaluate the average annual income of your hunting ground on the following elements:
  - Membership fees
  - Donations
  - Hunting tourism
  - Other

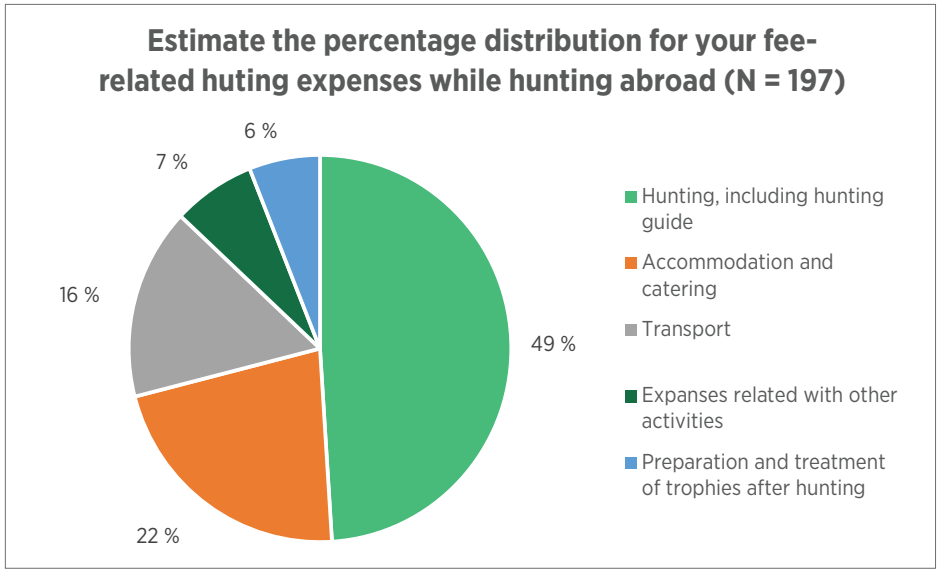
RESULT EXAMPLES FOR THE SURVEYS BASED ON A QUESTIONNAIRE FOR HUNTERS

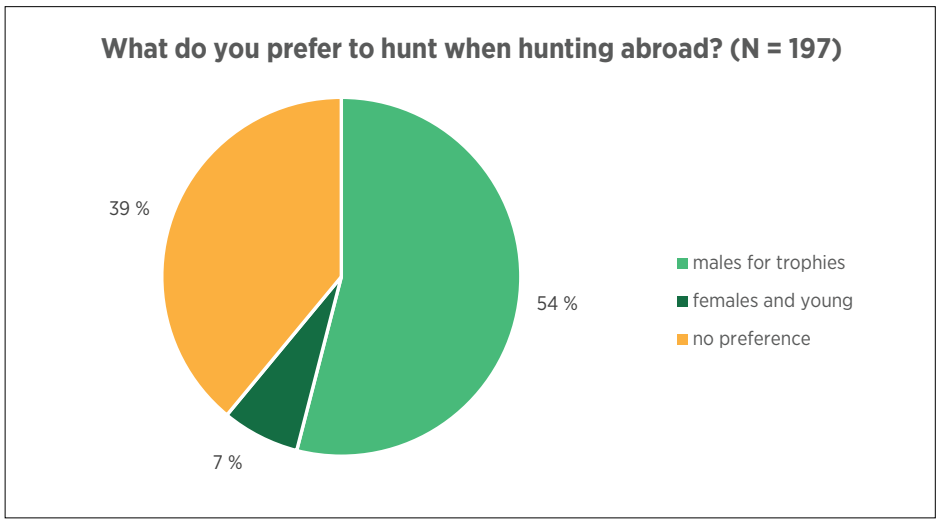


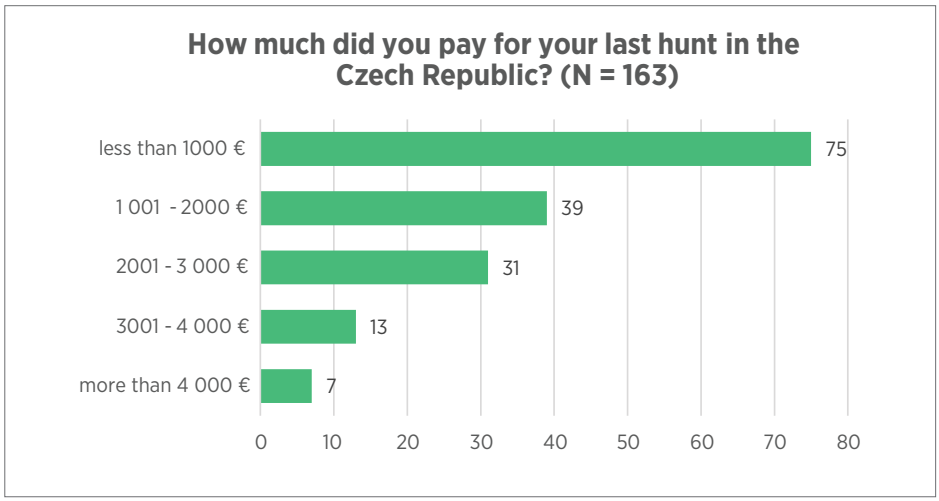

Have you used a hunting agency for organising your fee hunting in the Czech Republic? (N = 263)
6 %
94 %
Yes
No


Estimate the percentage distribution for your fee-related hunting expences when hunting in the Czech Republic (N = 263)
5 %
10 %
15 %
53 %
17 %
Hunting, including hunting guide
Accommodation and catering
Transport
Expenses related with ither activities
Preparation and treatment of trophies after hunting


Approximately how much money do you pay per year (on average) for fee hunting abroad? (N = 197)
9 %
6 %
30 %
10 %
20 %
25 %
up to 10 000 CZK
10 - 30 000 CZK
30 - 50 000 CZK
50 - 70 000 CZK
70 - 100 000 CZK
over 100 000 CZK


Estimate the percentage distribution for your fee-related huting expenses while hunting abroad (N = 197)
6 %
7 %
16 %
49 %
22 %
Hunting, including hunting guide
Accommodation and catering
Transport
Expanses related with other activities
Preparation and treatment of trophies after hunting


What do you prefer to hunt when hunting abroad? (N = 197)
39 %
54 %
7 %
males for trophies
females and young
no preference


How much did you pay for your last hunt in the Czech Republic? (N = 163)
less than 1000 €
1 001 - 2000 €
2001 - 3 000 €
3001 - 4 000 €
more than 4 000 €
75
39
31
13
7
0
10
20
30
40
50
60
70
80

APPENDIX B.
The extended summary and case study of Finland in Finnish

VAIKUTTAAKO METSÄSTYSMATKAILU TALOUTEEN?
– OPAS METSÄSTYSMATKAILUN TALOUDELLISTEN VAIKUTUSTEN ARVIOINTIIN

LAAJENNETTU TIIVISTELMÄ

TAVOITE

Tämä opaskirja on osa HUNTOUR-hanketta, jonka tavoitteena on tarjota oppimateriaaleja ja siten tukea päätöksentekoa koskien metsästysmatkailun kehittämistä Euroopan unionin jäsenmaissa.

Oppaan päätavoitteena on perehdyttää opiskelijat ja erilaiset metsästysmatkailun sidosryhmät arvioimaan metsästysmatkailun taloudellisia vaikutuksia eri aluetasoilla. Kirjan tavoitteena on antaa perustietoa taloustieteen arviointimenetelmistä ja siten auttaa ymmärtämään, arvioimaan ja tulkitsemaan metsästysmatkailuun keskittyvää tutkimusta ja sitä, miten metsästysmatkailu vaikuttaa ympäröivään talouteen.

JOHDATUS METSÄSTYSMATKAILUUN

Matkailu on yksi tärkeimmistä talouden aloista useimmissa maissa. Viime vuosikymmeninä, ennen koronaviruspandemiaa, matkailu on jatkuvasti laajentunut ja monipuolistunut. Matkailusta onkin tullut yksi maailman suurimmista ja nopeimmin kasvavista talouden sektoreista. Matkailu tarjoaa miljoonia työpaikkoja, ja monissa maissa se luo suuren osan bruttokansantuotteesta. Se ei vaikuta ainoastaan makrotaloudellisilla indikaattoreilla kuvattavaan talouteen, vaan myös alueelliseen kehitykseen esimerkiksi infrastruktuurin vahvistamisen myötä.

Metsästysmatkailu perustuu palvelujen tarjoamiseen metsästäjille, jotka matkustavat jokapäiväisen ympäristönsä ulkopuolisiin kohteisiin metsästämään. Metsästys on keskeinen luonnonvaraisten eläinten hyödyntämismuoto Euroopassa, suosittu luonnossa tapahtuva virkistymisen tapa, merkittävä liiketoimintamuoto ja tärkeä osa kulttuuriperintöä. Erityisenä matkailumuotona metsästysmatkailu voi olla lisätulonlähde syrjäisillä tai alikehittyneillä alueilla, joilla muut matkailumuodot ovat huonosti kehittyneet. Metsästysmatkailulla voi olla merkittävä myönteinen vaikutus paikalliseen yhteisöön. Lukuisat tutkijat ovat osoittaneet, että metsästysmatkailulla on huomattavia taloudellisia vaikutuksia sekä välittömästi metsästäjien rahankäytön että epäsuorasti kerrannaisvaikutusten kautta. Tulonmuodostuksen, työpaikkojen luomisen, yleisten ja erityisten verojen sekä lupamaksujen myötä metsästystoiminta tukee paikallisia, alueellisia ja kansallisia talouksia. Lisäksi toiminta kerryttää suurimman osan riistanhoidon rahoituksesta edistäen siten maaseudun kehittämistä.

Villieläimet ovat osa luonnonvaroja, ja eläinpopulaatiot asettavat ekologiset rajat metsästysmatkailulle. Metsästysmatkailu ei saa vaarantaa tai hyödyntää lajeja liikaa. Joissakin olosuhteissa metsästysmatkailu voi myös edistää biologisen monimuotoisuuden suojelua rajoittamalla liian suuriksi kasvaneita riistakantoja. Lisäksi metsästysmatkailun maaseuduille tuomat taloudelliset hyödyt voivat myös tehostaa suojelutoimia, koska riistapopulaatioille voidaan antaa taloudellista arvoa eikä riistaa pidetä vain ongelmana.

JOHDATUS TALOUDELLISTEN VAIKUTUSTEN ARVIOINTIIN

Metsästysmatkailu voi vaikuttaa ympäröivään talouteen monin tavoin. Matkailijoiden päätökset vaikuttavat muun muassa paikallisten majoitus- ja ravitsemispalvelujen, metsästyspalvelujen ja metsästyksessä hyödynnettävän infrastruktuurin kysyntään sekä mahdollisuuksiin käyttää aluetta muuhun virkistystoimintaan. Metsästysmatkailuun liittyvien hyödykkeiden kysynnän muutokset liittyvät tarjontapuoleen: mitä tavaroita ja palveluita tarjotaan, miten ne tuotetaan, kuinka suuria investointeja tarvitaan uuden kysynnän tyydyttämiseksi sekä miten ja milloin tavaroita ja palveluita tarjotaan asiakkaille. Lisäksi hallinnon ja viranomaisten sekä metsästyksen ja matkailun välillä on vastavuoroinen vaikutussuhde.

Taloudellisia muutoksia tapahtuu eri tasoilla. Metsästysmatkailu vaikuttaa kotitalouksiin ja yrityksiin, mihin viitataan mikrotaloudellisilla vaikutuksilla. Tällaisia vaikutuksia ovat esimerkiksi kotitalouksien kulutuspäätösten muutokset ja yritysten tuotantotasoa koskevat päätökset. Vaikka nämä muutokset ovat merkityksellisiä ja mielenkiintoisia, taloudellisten vaikutusten analyysissä näkökulma on yleensä laajempi. Painopiste ei ole yksittäisessä taloudellisessa toimijassa vaan tutkimuksen kohteena olevalla maantieteellisellä alueella asuvien ja toimivien kokonaisuudessa.

Metsästysmatkailu voi aiheuttaa myös makrotaloudellisia vaikutuksia eli sillä voi olla koko talouden laajuisia vaikutuksia. Tällainen vaikutus syntyy esimerkiksi silloin, kun alueellisen tuotannon tai työllisyyden arvo muuttuu matkailutoiminnan vuoksi. Osa vaikutuksista kohdistuu metsästysmatkailuun osallistuviin toimijoihin, kuten metsästäjille palveluja tarjoaviin yrityksiin tai itse metsästysmatkailijoihin. Lisäksi tämä alkuperäinen vaikutus voi alkaa kiertää taloudessa, mikä tarkoittaa, että alkuperäinen tapahtuma vaikuttaa myös muihin yrityksiin ja ihmisiin.

Miksi sitten on mielenkiintoista arvioida metsästysmatkailun taloudellisia vaikutuksia? Kiinnostus herää, kun matkailutoiminta vaikuttaa tai voi vaikuttaa laajempaan yleisöön ja kun nämä toimijat tekevät metsästysmatkailua koskevia päätöksiä. Joillain alueilla on voitu huomata, että niillä on tarpeeksi riistakantoja ja mahdollisuuksia lisätä metsästysmatkailijoiden saapumista alueelle. Ennen kuin tällaisilla alueilla investoidaan uuteen matkailuinfrastruktuuriin, on järkevää määrittää kasvun taloudelliset mahdollisuudet. Tämän kaltaisessa tapauksessa mahdollisuuksien hyödyntäminen voi vaikuttaa muun muassa yritysten tuloihin, kotitalouksien palkkoihin, kuntien verotuloihin ja alueelliseen työllisyysasteeseen. Toisella alueella voidaan käydä keskustelua siitä, miten metsästysluvat jaetaan paikallisten ja metsästysmatkailijoiden kesken huomioiden matkailijoiden osoittama kysyntä. Molemmissa tapauksissa tieto taloudellisista vaikutuksista tukee päätöksentekoa.

Päätöksiä voivat tehdä viranomaiset, jotka myöntävät lupia ja toteuttavat metsästysmatkailuun liittyviä politiikkoja. Lisäksi päätöksiä tekevät muun muassa yritykset, jotka

toimivat matkailualalla ja investoivat liiketoimintaansa, sekä kansalaiset, jotka arvioivat, ylittävätkö metsästysmatkailun taloudelliset hyödyt siitä aiheutuvan haitan. Kukin taho hyötyy vaikutusarvioinneista, joiden tarkoituksena on antaa yleiskuva tilanteesta.

Taloudelliset vaikutukset voidaan luokitella sen perusteella, miten vaikutukset syntyvät. **Suorilla vaikutuksilla** tarkoitetaan usein metsästysmatkailijoiden rahankäyttöä kohdealueella. Kulutuksen vuoksi esimerkiksi paikalliset metsästyspalvelujen tarjoajat voivat palkata uusia työntekijöitä ja alueellisen tuotannon arvo voi nousta. Matkailutuotteiden kysynnän kasvaessa näitä tuotteita tarjoavien yritysten on käytettävä enemmän tuotantopanoksia, esimerkiksi alihankintana teetettyjä ateriapalveluja tai polttoaineita kuljetuspalvelujen tarjoamiseen. Tuotantopanosten kysynnän kasvulla on **välillisiä vaikutuksia**. Suorat ja välilliset vaikutukset johtavat uusiin työpaikkoihin ja siten ansiotulojen kasvuun. Kun nämä lisätulot kulutetaan alueellisesti tuotettujen tavaroiden ja palvelujen ostamiseen, se vaikuttaa edelleen alueen talouteen. Tällaista vaikutusta kutsutaan **johdetuiksi vaikutuksiksi**. **Kokonaisvaikutus** sisältää kaikki nämä kolme kerrosta. **Kerroinvaikutus** kuvaa suoran vaikutuksen ja kokonaisvaikutuksen suhdetta.

TALOUDELLISTEN VAIKUTUSTEN ARVIOINTIMENETELMÄT JA AINEISTOT

Erilaisiin tutkimuskysymyksiin vastaaminen on mahdollista, kun käytössä on monipuolisesti menetelmiä. Metsästysmatkailun tai minkä tahansa muun ilmiön vaikutusta kansantalouteen tai aluetalouteen voidaan arvioida eri tavoin. Jokaisella arviointimenetelmällä on vahvuutensa, ja riippuu tutkimuskysymyksestä, mikä menetelmä valitaan. Tutkimuskysymyksen lisäksi aineistojen ja muiden resurssien saatavuus voi vaikuttaa menetelmän valintaan. Taulukossa 1 olemme tiivistäneet joitakin yleisiä kysymyksiä, jotka liittyvät metsästysmatkailun taloudellisiin vaikutuksiin, ja ehdottaneet sopivia menetelmiä vastaamaan näihin kysymyksiin.

Taulukko 1. Menetelmän valinta – yleisiä tutkimuskysymyksiä ja tulosesimerkkejä

Mahdolliset tutkimuskysymykset	Sopivat menetelmät	Esimerkki tuloksista
Mikä on metsästysmatkailun **suora taloudellinen vaikutus** tutkitulla alueella?	Kuvailevat tilastot Mikrotaloudellinen optimointi Pohjoismainen malli	Vaikutus tutkimusalueen tuloihin ja työllisyyteen.
Mikä on metsästysmatkailun **taloudellinen kokonaisvaikutus** (mukaan lukien kerrannaisvaikutus)?	Panos-tuotosmallit Yleisen tasapainon mallit Pohjoismainen malli	Vaikutus kansalliseen tai alueelliseen tuotantoon, bruttokansantuotteeseen (BKT), työllisyyteen, tuloihin jne.
Mitkä ovat suunniteltujen metsästysmatkailuinvestointien/-politiikkojen/-suunnitelmien **(tulevat) taloudelliset vaikutukset**?	Kustannus-hyötyanalyysi Panos-tuotosmallit Yleisen tasapainon mallit Pohjoismainen malli	Investoinnin/politiikan/suunnitelman kustannukset ja hyödyt. Vaikutus kansalliseen tai alueelliseen tuotantoon, BKT:hen, työllisyyteen, tuloihin jne.
Mitkä olivat metsästysmatkailun tutkitun muutoksen **(aiemmat) taloudelliset vaikutukset**?	Kuvailevat tilastot Mikrotaloudellinen optimointi Pohjoismainen malli Kustannus-hyötyanalyysi Panos-tuotosmallit Yleisen tasapainon mallit	Menetelmästä riippuen esimerkiksi vaikutus tuloihin ja työllisyyteen, muutoksen kustannukset ja hyödyt, vaikutus kansalliseen tai alueelliseen tuotantoon, BKT:hen, työllisyyteen jne.
Mikä on esimerkiksi ekosysteemipalvelujen **muutoksen arvo**, joka ei heijastu markkinahintoihin?	Taloudelliset arvottamismenetelmät	Kuinka paljon ihmiset ovat valmiita maksamaan joistakin muutoksista. Kuinka paljon yksittäinen tekijä tai piirre vaikuttaa arvoon.

MENETELMIEN KESKEISIÄ PIIRTEITÄ

Kuvailevat tilastot

- Viralliset tilastot ja muut olemassa olevat tietokannat tarjoavat avointa aineistoa, jonka avulla voidaan kuvata taloudellista tilannetta ja arvioida taloudellisia vaikutuksia.
- Kansantalouden tilinpito ja aluetilinpito tarjoavat yleiskuvan talouksista.
- Matkailun satelliittitilinpidot täydentävät kuvaa matkailua koskevilla tiedoilla.
- Metsästysmatkailuun keskittyvää tilastomateriaalia voi saada esimerkiksi kansallisilta viranomaisilta tutkimustarkoituksiin.
- Vaikutustenarviointien lähtökohtana on yleensä olemassa olevien tai vasta kerättyjen tietojen kuvaus, mukauttaminen ja tilastollinen analyysi.

Suora taloudellinen vaikutus – Pohjoismainen malli

- Pohjoismaisella mallilla arvioidaan matkailun vaikutus aluetalouteen matkailijoiden kulutuksen perusteella.
- Pohjoismaisessa mallissa arvioidaan matkailun talous- ja työllisyysvaikutuksia tutkimusalueella, ja arvioinnissa voidaan käyttää kahta lähestymistapaa:
    - **Tulomallissa** analysoidaan yrityksiin kohdistuvia matkailun taloudellisia vaikutuksia keräämällä tietoa paikallisilta matkailuyrityksiltä.
    - **Menomallissa** tarkastellaan matkailijoiden rahankäyttöä erilaisiin matkailupalveluihin ja -tuotteisiin kohdealueella.
- Aineisto kootaan pääosin haastatteluista ja kyselyistä. Joskus aineiston kerääminen voi olla kallista ja aikaa vievää, tiedot voivat olla heikkolaatuisia (mm. matkailualan yritysten vastaamishalukkuuden, aineiston luotettavuuden ja vastausten tarkkuuden osalta).
- Tuloksia voidaan käyttää syötteinä muissa tutkimuksissa, kuten käytettäessä yleisen tasapainon malleja, kustannus-hyötyanalyysiä tai panos-tuotosmalleja.

Mikrotaloudellinen optimointi

- Kustannukset ja tulot muuttuvat tuotannon laajuuden myötä.
- Tuotannon optimoinnin tavoitteena on löytää tuotantotaso, joka johtaa suurimpaan voittoon.
- Empiirisiä aineistoja voidaan käyttää tuotanto- ja voittofunktioiden muodostamiseksi.
- Voittofunktion maksimi löytyy matemaattisilla menetelmillä.

Taloudellinen mallinnus – Panos-tuotosmallit

- Panos-tuotosmallin avulla voidaan tunnistaa talousjärjestelmän toimialojen väliset keskinäiset riippuvuudet, koska yhden toimialan käyttämät tuotantopanokset ovat toisen tuotoksia.

- Nämä suhteet johtavat lopulta tarjonnan ja kysynnän väliseen tasapainoon koko taloudessa.
- Panos-tuotosmallilla voidaan arvioida suorat ja välilliset taloudelliset vaikutukset.
- Symmetristen panos-tuotostaulukoiden (SIOT) avulla on mahdollista laskea tuotantoon liittyvät vaikutuskertoimet ja siten arvioida kerrannaisvaikutusta toimialalla.

Taloudellinen mallinnus – Yleisen tasapainon mallit

- Yleisen tasapainon malleja käytetään arvioimaan laajempia taloudellisia vaikutuksia.
- Mallit kuvaavat talouksia kokonaisuutena yhtälöryhmillä, jotka on johdettu vakiintuneista talousteorioista.
- Mallinnuksessa käytetyt tietokannat kootaan pääosin virallisista tilastoista.
- Mallinnustulokset kuvaavat sekä suoria että välillisiä vaikutuksia.
- Mallit keskittyvät makrotason vaikutuksiin, ja yleisesti raportoituihin tuloksiin kuuluvat BKT:n, työllisyyden, tulojen ja kaupan muutokset.

Kustannus-hyötyanalyysi

- Kustannus-hyötyanalyysillä arvioidaan rahassa ilmaistuja hyötyjä ja kustannuksia, joita tutkittu hanke, politiikka tai muut ilmiöt aiheuttavat tai ovat aiheuttaneet ihmisille, joihin kohdistuvat hyödyt ja kustannukset on määritelty huomioitaviksi.
- Nettonykyarvo ilmaisee nykyarvoiksi diskontattujen kustannusten ja hyötyjen välisen eron.
- Kustannus-hyötyanalyysin tulosten avulla voidaan esimerkiksi valita, mikä projekti tai politiikka otetaan käyttöön. Päätössääntönä on valita vaihtoehto, jolla on (suurin) positiivinen nettonykyarvo.

Muut menetelmät

- Metsästysmatkailuun liittyvien ilmiöiden taloudellisia seurauksia voidaan analysoida myös muilla menetelmillä.
- Kerroinmallit keskittyvät välillisiin vaikutuksiin ja niillä lasketaan, kuinka paljon jokin määrä kasvaa (esim. matkailualan työllisyys), jos panos (yleensä matkailijoiden rahankäyttö) muuttuu lisäyksikön verran (esim. yhdellä eurolla).
- Taloudellisen arvottamisen menetelmien avulla voidaan tunnistaa rahamääräiset arvot, jotka eivät näy markkina-arvoissa, ja määrittää esimerkiksi virkistyskäytön taloudellinen arvo.

LOPUKSI

Taloudelliset arviointimenetelmät voivat olla hyödyllisiä välineitä arvioitaessa erilaisten taloudellisten toimintojen ja olosuhteiden muutosten suuntaa antavia talousvaikutuksia. Esimerkiksi arvioinnissa käytetyt oletukset ja hyödynnettyjen aineistojen laatu vaikuttavat kuitenkin tulosten luotettavuuteen. Kaikilla menetelmillä on etunsa ja haittansa, joita olemme tiivistäneet taulukossa 2.

Taulukko 2. Taloudellisia vaikutuksia arvioivien menetelmien edut ja haitat.

Menetelmä	Etuja	Haittoja
Kuvailevat tilastot	+ hyödyntää olemassa olevia tietoja + helppokäyttöinen + laaja valikoima muuttujia	- ottaa huomioon vain suorat vaikutukset - mahdollista tarkastella vain aiempia vaikutuksia
Mikrotaloudellinen optimointi	+ soveltuu nykyisten/aiempien vaikutusten arviointiin sekä joskus tulevien ennusteiden tekemiseen + mahdollista toteuttaa analyysiä rajallisilla empiirisillä tiedoilla	- ottaa huomioon vain suorat vaikutukset - sisältää useita oletuksia/yksinkertaistuksia
Pohjoismainen malli	+ joustava + helposti käytettävissä	- ottaa huomioon pääasiassa suorat vaikutukset - aineiston suhteen saattaa ilmetä haasteita (esim. kustannukset ja laatu)
Panos-tuotosmallit	+ mahdollisuus arvioida aiempia ja tulevia vaikutuksia + ottaa huomioon myös kerrannaisvaikutukset + sopii myös dynaamisiin tarkasteluihin + useita raportoitavia muuttujia	- ei huomioi resurssirajoituksia (esim. työvoiman saatavuus) - melko tietointensiivistä eli tarvitsee paljon aineistoja - sisältää useita oletuksia/yksinkertaistuksia
Yleisen tasapainon mallit	+ ottaa huomioon myös kerrannaisvaikutukset + mahdollisuus arvioida aiempia ja tulevia vaikutuksia + laaja valikoima muuttujia + soveltuu myös dynaamisiin arviointeihin	- tietointensiivinen - vaatii laajaa osaamista (ml. ohjelmointi) - vaatii ohjelmistolisenssejä - sisältää useita oletuksia/yksinkertaistuksia
Kustannus-hyötyanalyysi	+ mahdollisuus arvioida aiempia ja tulevia hankkeita + mahdollista asettaa vaihtoehtoja paremmuusjärjestykseen selkeillä säännöillä	- joitakin etuja ja kustannuksia on vaikea arvioida - voi jättää huomiotta joitakin kustannuksia tai hyötyjä
Kerroinmallit	+ ottaa huomioon kerrannaisvaikutukset	- ei huomioi resurssirajoituksia - sisältää useita oletuksia/yksinkertaistuksia
Taloudellinen arvottaminen	+ mahdollista tunnistaa rahassa mitattavia arvoja, jotka eivät näy markkina-arvoissa	- ei arvioi ilmiön laajempia taloudellisia vaikutuksia

Vaikutusarvioinnit voivat tarjota päätöksentekijöille arvokasta tietoa ympäröivästä taloudesta: miten eri toimijat ja toiminnot liittyvät toisiinsa ja mitkä voisivat olla yksittäisten muutosten laajemmat seuraukset. Tämä ymmärrys tarjoaa hyvän pohjan tietoon perustuvien päätösten tekemiselle. Vaikka taloudellisten vaikutusten tunnistaminen on tärkeää, myös muut näkökohdat on huomioitava. Metsästysmatkailun sosiaaliset, kulttuuriset ja ympäristöön kohdistuvat vaikutukset ovat keskeisiä näkökulmia päätöksentekoprosesseissa.

Taloudellisten vaikutusten arvioinnit keskittyvät kokonaiskuvaan. Joissakin tapauksissa vaikutus yleisemmällä tasolla voi olla melko pieni, mutta vaikutus yksittäisiin taloudellisiin toimijoihin voi olla merkittävä. Vastaavasti yleinen vaikutus voi olla myönteinen, mutta joillekin toimijoille voi aiheutua taloudellisia tappioita harkitun muutoksen vuoksi. Siksi on hyvä pohtia, voidaanko tarkasteltavaa taloudellista muutosta pitää oikeudenmukaisena kehityksenä. Toinen huomionarvoinen seikka on, että vaikka BKT:n kaltaiset mittarit voivat kertoa mielenkiintoisia ja tärkeitä asioita, ne eivät ole täydellisiä mittareita. Näissä indikaattoreissa sivuutetaan joitakin tärkeitä näkökohtia, mikä voi vakavasti rajoittaa niiden kykyä kuvata esimerkiksi vaikutuksia ihmisten hyvinvointiin. Kaiken kaikkiaan taloudellisten vaikutusten arvioinnit voivat tukea päättäjiä, mutta on viisasta muistaa kunkin menetelmän ja tutkimuksen rajoitukset.

LUKEMISTOA

Lisätietoa talousvaikutusten arvioinnista löytyy muun muassa seuraavista lähteistä. Suosittelemme perehtymään aluksi opaskirjaamme, joka tiivistää yleisimpien arviointimenetelmien keskeiset piirteet painottaen metsästysmatkailua arvioinnin kohteena. Suosittelemme myös tutustumaan opaskirjassa esiteltyihin tapaustutkimuksiin, jotka tarjoavat esimerkkejä siitä, miten joitakin arviointimenetelmiä voidaan soveltaa metsästysmatkailun vaikutusten tarkastelussa. Seuraavat kirjat voivat myös olla hyödyllisiä perehdyttäessä arviointimenetelmiin.

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METSÄSTYSKAUDEN PIDENTÄMISEN ALUETALOUDELLINEN MERKITYS ITÄ-LAPISSA

Tausta. Suomessa metsästysmatkailijat ovat yleensä suomalaisia, kotialueensa ulkopuolelle matkaavia metsästäjiä. Tavanomaisesti he hankkivat pienriistaluvan valtion maille ja järjestävät itse metsästysmatkansa. Valtion maille myydään vuosittain noin 35 000–40 000 lupaa. Pienriistana metsästetään useimmiten kanalintuja (riekko (Lagopus lagopus), teeri (Lyrurus tetrix) ja metso (Tetrao urogallus)). Syksyllä 2019 kokeiltiin metsästyskauden pidentämistä, mikä oli mahdollista kanalintukannan kasvun myötä. Kokeilu nosti esiin kiinnostavia tutkimuskysymyksiä: miten metsästyskauden pidentäminen vaikuttaa aluetalouteen ja kuinka monta kanalintua metsästetään pidennetyllä kaudella. Koska kanalintujen metsästys perustuu luonnonvaraisiin populaatioihin, pienriistaluvan ostaneelle metsästäjälle ei voida taata saalista. Metsästäjä voi metsästää esimerkiksi viikon ajan ja saada ehkä yhden tai kaksi lintua saaliikseen koko viikon aikana. Voidaan kuitenkin olettaa, että metsästäjien rahankäyttö metsästyspäivää kohden pysyy suhteellisen vakaana. Koska metsästys on paljon vaikeampaa talvella kuin syksyllä, metsästyskauden pidentäminen voi lisätä metsästysmatkailun taloudellista hyötyä kohdistamatta voimakasta metsästyspaineen kasvua kanalintukantoihin.

Tutkimuskysymys. Tutkimuksen tavoitteena oli arvioida alueellisia kokonaistaloudellisia vaikutuksia, jotka kanalintujen metsästyskauden pidentäminen aiheuttaisi Itä-Lapin seutukunnassa. Tarkoituksena oli luoda käsitys siitä, miten metsästysmatkailu edistää syrjäisten maaseutualueiden taloutta. Tutkimusalueeksi valittiin Itä-Lappi, koska alueella sijaitsee paljon valtion maita ja iso osa kilpailluimmista lupa-alueista.

Aineisto. Aineisto koostui Itä-Lapin metsästysmatkailijoiden käyttäytymistä, rahankäyttöä, matkojen kestoa ja lupaostoja käsittelevästä aineistosta. Olennaista aineistoa kerättiin myös virallisista tilastoista, etenkin kansantalouden tilinpidosta ja aluetilinpidosta. Aineisto hankittiin Metsähallitukselta ja Tilastokeskukselta.

Menetelmä. Alueen kokonaistaloudelliset vaikutukset arvioitiin Helsingin yliopisto Ruralia-instituutissa kehitetyllä staattisella RegFin-mallilla, joka lukeutuu yleisen tasapainon (engl. CGE) malleihin. RegFin-mallit kattavat Suomen kaikki alueet sekä kunkin toimialan ja muiden toimijoiden tilastoitavan taloudellisen toiminnan antaen siten kattavan yleiskuvan Suomen aluetalouksista. Malleihin ovat vaikuttaneet australialaiset TERM- ja MMRF-mallit. Laskelmat toteutettiin Gempack-ohjelmistolla.

Tulokset. Kulutustietojen mukaan metsästyskauden pidentämisen suora vaikutus yksityiseen kulutukseen Itä-Lapissa olisi noin 300 000 euroa. CGE-simulaatiotulosten mukaan jokainen metsästysmatkailijoiden käyttämä lisäeuro kasvattaisi alueen yksityistä kulutusta 1,4 eurolla, kun huomioidaan myös välilliset vaikutukset. Alueellinen työllisyys kasvaisi 0,4 henkilötyövuotta jokaista 100 000 euroa kohden, jolla metsästysmatkailijoiden rahankäyttö alueella kasvaa. Keskimääräinen rahankäyttö yhtä saaliiksi saatua lintua kohtaan oli syyskuussa noin 280 euroa ja tammikuussa noin 1 330 euroa.

Johtopäätökset. Tulokset osoittavat, että Itä-Lapin metsästysmatkailijoiden rahankäytön kerrannaisvaikutukset ovat samaa luokkaa aiempien matkailututkimusten tulosten kanssa. Koska talvimetsästyksen aikana kanalintusaalis on pienempi, jokainen tammikuussa metsästetty lintu tuo lähes viisi kertaa enemmän tuloja paikalliselle taloudelle verrattuna syyskuussa tapahtuvaan metsästykseen. Talvimetsästys voisi siten olla ekologisesti kestävä tapa saada aikaan taloudellisia vaikutuksia alueelle, vaikkakin taloudellinen vaikutus on suhteellisen pieni.

APPENDIX C.
The extended summary and case study of Czech in Czech

OVLIVŇUJE LOVECKÁ TURISTIKA EKONOMIKU?
– PŘÍRUČKA PRO HODNOCENÍ EKONOMICKÉHO DOPADU LOVECKÉ TURISTIKY

ROZŠÍŘENÉ SHRNUTÍ

ÚVOD

Tento průvodce je součástí projektu HUNTOUR, jehož cílem je poskytovat vzdělávací materiály a tím podpořit rozhodování o rozvoji lovecké turistiky v zemích Evropské unie.

Hlavním cílem této příručky je seznámit studenty i různé myslivecké organizace spojené s turistikou s hodnocením ekonomických dopadů lovecké turistiky na různých regionálních úrovních. Průvodce si klade za cíl poskytnout uživateli základní přehled o metodách hodnocení v ekonomii a následně pomoci pochopit, zhodnotit a interpretovat výzkum zaměřený na loveckou turistiku a její vliv na okolní ekonomiku.

ÚVOD DO LOVECKÉ TURISTIKY

Cestovní ruch je ve většině zemí jedním z důležitých hospodářských odvětví. V posledních desetiletích, před pandemií koronaviru, zažíval cestovní ruch neustálou expanzi a diverzifikaci a stal se tak jedním z největších a nejrychleji rostoucích hospodářských odvětví na světě. Cestovní ruch vytváří miliony pracovních míst a v mnoha zemích představuje vysoký podíl hrubého domácího produktu. Ovlivňuje nejen ekonomiku, kterou lze popsat makroekonomickými ukazateli, ale také regionální rozvoj například v podobě zlepšení infrastruktury.

Lovecká turistika je založena na poskytování služeb lovcům, kteří cestují za lovem do destinací mimo svůj revír. Lov v Evropě využívá ekonomické zhodnocení volně žijící divoké zvěře, stejně tak je oblíbenou formou rekreace v přírodě, významnou formou podnikání a důležitou součástí kulturního dědictví. Jako specifická forma cestovního ruchu může být lovecká turistika dalším zdrojem příjmů pro periferní nebo zaostalé regiony, kde jsou ostatní formy cestovního ruchu málo rozvinuté. Lovecká turistika může mít také výrazně pozitivní vliv na místní komunitu. Řada výzkumů prokázala, že lovecká turistika má značné ekonomické dopady, a to jak prostřednictvím přímých výdajů lovců, tak prostřednictvím nepřímých multiplikačních efektů. Prostřednictvím vytváření příjmů, pracovních míst, všeobecných a specifických daní a poplatků za lovecké lístky a povolenky poskytují lovecké činnosti ekonomický přínos pro lokální, regionální a národní hospodářství. Kromě toho je následně poskytována většina finančních prostředků na péči o volně žijící zvířata a přispívá také k rozvoji venkova.

Divoká zvěř je přírodním zdrojem a lidé musí uvažovat ekologické limity pro loveckou turistiku. Ta by neměla ohrozit ani nadměrně využívat jednotlivé druhy zvěře. V ideálním případě, by lovecká turistika měla přispívat k ochraně biodiverzity při redukci přemnožených populací zvěře. Ekonomické přínosy, které lovecká turistika přináší venkovu, mohou navíc posílit úsilí o jejich ochranu, protože populace zvěře mohou získat ekonomickou hodnotu a zvěř tak není vnímána pouze jako problém.

ÚVOD DO HODNOCENÍ EKONOMICKÝCH DOPADŮ

Lovecká turistika může mít dopad na ekonomiku v několika úrovních. Rozhodnutí turistů ovlivňují například poptávku po místních ubytovacích a stravovacích službách, myslivecких službách a zařízeních a možnosti využití území pro další rekreační aktivity. Změny v poptávce po komoditách souvisejících s loveckou turistikou jsou spojeny se stranou nabídky: jaké zboží a služby jsou nabízeny, jak jsou vyráběny, jak velké investice jsou potřeba k uspokojení nové poptávky nebo jak a kdy jsou zboží a služby zákazníkům dostupné. Vlády a další orgány navíc ovlivňují a jsou ovlivňovány jak odvětvím myslivosti, tak odvětvím cestovního ruchu.

Ekonomické změny lze identifikovat na různých úrovních. Na mikroekonomické úrovni lovecká turistika ovlivňuje domácnosti a firmy. Příkladem takových efektů jsou změny ve spotřebitelských rozhodnutích domácností a rozhodnutí firem o úrovních produkce. I když jsou tyto změny relevantní a zajímavé, analýza ekonomického dopadu má obvykle širší perspektivu. Důraz není kladen na jednoho ekonomického aktéra, ale na skupinu aktérů, kteří žijí a působí ve studovaném geografickém regionu.

Lovecká turistika má také makroekonomické efekty, což naznačuje, že lovecká turistika může vytvářet efekty pro celou ekonomiku země. Takový dopad nastává, když se například změní hodnota regionální produkce nebo zaměstnanosti v důsledku aktivit cestovního ruchu. Některé efekty dopadají na subjekty, které jsou úzce spjati s loveckou turistikou, jako jsou společnosti poskytující služby pro myslivce, nebo na samotné lovecké turisty. Navíc tento počáteční dopad může začít cirkulovat v ekonomice, což znamená, že původní aktivita ovlivňuje i další firmy a jednotlivce.

Ekonomické dopady lze klasifikovat na základě procesu, jakým jsou dopady vytvářeny. **Přímé dopady** se týkají výdajů loveckých turistů ve zvoleném regionu. S rostoucí poptávkou po produktech souvisejících s cestovním ruchem budou muset společnosti poskytující tyto produkty využívat více vstupů, například subdodavatelské stravovací služby nebo pohonné hmoty k poskytování dopravních služeb. Tato zvýšená poptávka po výrobních vstupech bude vytvářet **nepřímé dopady**. Přímé a nepřímé dopady povedou k novým pracovním místům, a tedy ke zvýšení výdělečných příjmů. V důsledku zvýšené poptávky po lovu by například místní poskytovatelé loveckých služeb mohli najímat nové zaměstnance a hodnota regionální produkce by mohla stoupnout. Pokud noví zaměstnanci utratí dodatečné příjmy na nákup regionálně vyrobeného zboží a služeb, ovlivní tak ekonomiku regionu. Takový následek se nazývá **indukované dopady**. **Celkový dopad** zahrnuje všechny tyto tři vrstvy. Když porovnáme přímý účinek a celkový dopad, můžeme vypočítat **multiplikační efekt**.

A proč je tedy zajímavé hodnotit ekonomický dopad lovecké turistiky? Zájem vzniká, když aktivity cestovního ruchu ovlivňují nebo by mohly ovlivnit širší okruh lidí a zejména v případě rozhodovacího procesu o aktivitách loveckého cestovního ruchu. Možná některý

kraj zjistí, že má dostatek populací zvěře (či se potýká s jejím přemnožením) a že by mohl zvýšit příliv lovců do svého regionu. Před samotnou investicí do nové infrastruktury cestovního ruchu, bylo by moudré vyčíslit ekonomický potenciál takového růstu. V této souvislosti by realizace potenciálu mohla ovlivnit mimo jiné příjmy firem i domácností, daňové příjmy obcí a regionální míru zaměstnanosti. V jiném kraji se může diskutovat o rozdělení loveckých lístků mezi místní lovce a cizí lovce tak, aby byly uspokojeny požadavky lovecké turistiky. V obou případech znalost ekonomického dopadu podporuje rozhodování.

Rozhodnutí mohou přijímat orgány, které přidělují povolení a zavádějí opatření, firmy, které organizují produkty cestovního ruchu a investují do podnikání, občané, kteří posuzují, zda ekonomické přínosy převyšují uznanou škodu, nebo další aktéři. Každý z nich těží z posouzení dopadů, jejichž cílem je poskytnout přehled o aktuální situaci.

METODY A MATERIÁLY HODNOCENÍ EKONOMICKÝCH DOPADŮ

Rozdílnost metod umožňuje odpovídat na různé druhy otázek. Vliv lovecké turistiky nebo jakéhokoli jiného fenoménu na národní či regionální ekonomiku lze hodnotit různými metodami. Každá metoda hodnocení má své silné stránky a záleží na výzkumné otázce, kterou metodu zvolit. Kromě navrhované otázky může výběr metody ovlivnit dostupnost dat a dalších zdrojů. V tabulce 1 jsou shrnuté některé běžné otázky související s ekonomickým dopadem lovecké turistiky a je zde i návrh vhodné metody, jak najít odpovědi na položené otázky.

Tabulka 1. Výběr metody – běžné výzkumné otázky a příklady výsledků

Možné výzkumné otázky	Vhodné metody	Příklad výsledků
Jaký je **přímý ekonomický dopad** lovecké turistiky ve studovaném regionu?	Popisná statistika Mikroekonomická optimalizace Severský model	Vliv na příjem a zaměstnanost ve sledovaném regionu.
Jaký je **celkový ekonomický dopad** lovecké turistiky (včetně multiplikačního efektu)?	Vstupně-výstupní modely Modely obecné rovnováhy Severský model	Dopad na národní nebo regionální produkci, hrubý domácí produkt (HDP), zaměstnanost, příjem atd.
Jaké budou **(budoucí) ekonomické dopady** plánovaných investic/opatření/plánů lovecké turistiky?	Analýza nákladů a přínosů Vstupně-výstupní modely Modely obecné rovnováhy Severský model	Náklady a přínosy investice/opatření/plánů. Dopad na národní nebo regionální produkci, HDP, zaměstnanost, příjem atd.
Jaké byly **(minulé) ekonomické dopady** změny v lovecké turistice?	Popisná statistika Mikroekonomická optimalizace Severský model Analýza nákladů a přínosů Vstupně-výstupní modely Modely obecné rovnováhy	V závislosti na metodě, např. dopad na příjem a zaměstnanost, náklady a přínosy změny, dopad na národní nebo regionální produkci, HDP, zaměstnanost atd.
Jaká je **hodnota změny** např. ekosystémové služby, které se nepromítají do tržních cen?	Ekonomické metody oceňování	Kolik jsou lidé ochotni zaplatit za nějakou změnu. Jak moc jedna složka nebo atribut přispívá k hodnotě.

VYBRANÉ CHARAKTERISTIKY RŮZNÝCH METOD

Popisná statistika

- Oficiální statistiky a další existující databáze poskytují materiály s volným přístupem, které lze použít k popisu ekonomické situace a posouzení ekonomických dopadů.
- Národní a regionální účty nabízejí přehled o ekonomikách.
- Satelitní účty cestovního ruchu doplňují údaje o cestovním ruchu.
- Statistické materiály zaměřené na loveckou turistiku lze získat např. od vnitrostátních orgánů pro výzkumné účely.
- Popis, přizpůsobení a statistická analýza stávajících nebo nově shromážděných údajů obvykle tvoří výchozí bod pro posouzení dopadů.

Přímý ekonomický dopad – Severský model

- Severský model představuje hodnocení dopadu cestovního ruchu na regionální ekonomiku a vypočítává ekonomický dopad cestovního ruchu na základě spotřeby turistů.
- Severský model měří ekonomické účinky cestovního ruchu ve specifických prostorových podmínkách a existují dva přístupy:
    - Příjmový model analyzuje ekonomické dopady cestovního ruchu na místní společnosti sběrem dat od společností cestovního ruchu v rámci místního cestovního ruchu.
    - Výdajový model zkoumá částky utracené turisty ve vybraném regionu a celkové výdaje turistů za různé služby a produkty cestovního ruchu.
- Databáze jsou sestavovány především z rozhovorů a průzkumů. Sběr některých dat může být drahý a časově náročný, data mohou mít nedostatečnou kvalitu (v závislosti například na ochotě podniků cestovního ruchu spolupracovat, získávání nespolehlivých dat a nespolehlivém odhadu výdajů respondentů)
- Výsledky mohou být použity jako vstupy do jiných studií, např. při použití modelů *Computable General Equilibrium Models* (Modely obecné rovnováhy), analýzy nákladů a přínosů nebo vstupně-výstupních modelů.

Mikroekonomická optimalizace

- Náklady a výnosy se budou měnit spolu s rozsahem výroby.
- Cílem optimalizace výroby je najít takovou úroveň výroby, která vede k maximálnímu zisku.
- Empirická data lze použít k odhalení produkčně-ziskové funkce.
- Maximum ziskové funkce lze nalézt matematickými metodami.

Ekonomické modelování – Vstupně-výstupní modely (I-O modely)

- Vstupně-výstupní model umožňuje identifikovat vzájemné závislosti mezi odvětvími v ekonomickém systému, protože vstupy jednoho odvětví jsou výstupy jiného odvětví.
- Tyto vztahy v konečném důsledku vedou k rovnováze mezi nabídkou a poptávkou v ekonomice jako celku.
- Vstupně-výstupní model pokrývá přímý i nepřímý ekonomický dopad lovecké turistiky.
- Díky symetrickým input-output tabulkám (SIOT) je možné identifikovat výrobní multiplikátory a vyhodnotit tak multiplikační efekt v rámci odvětví.

Ekonomické modelování – Modely obecné rovnováhy (CGE modely)

- Modely CGE se používají k hodnocení širšího ekonomického dopadu.
- Modely popisují ekonomiky jako celek pomocí soustav rovnic, které jsou odvozeny ze zavedených ekonomických teorií.
- Modelovací databáze jsou převážně sestavovány z oficiálních statistik.
- Výsledky modelování CGE zachycují přímé i nepřímé efekty.
- Zaměřují se na dopad na makroúrovni a běžně uváděné výsledky zahrnují změny v HDP, zaměstnanosti, příjmu a obchodu.

Analýza nákladů a přínosů (CBA)

- CBA vyhodnocuje peněžní výnosy a náklady, které by studovaný projekt, opatření nebo jiné jevy způsobily nebo by mohly způsobit lidem, kteří jsou opatřeními dotčeni.
- Čistá současná hodnota (NPV) udává rozdíl mezi náklady a výnosy, které jsou diskontovány na současné hodnoty.
- Výsledky analýzy nákladů a přínosů lze použít například k výběru toho, který projekt nebo zásady mají být přijaty. Rozhodovacím pravidlem je pak vybrat alternativu, která má (největší) kladnou NPV.

Další metody

- Ekonomické důsledky jevů souvisejících s loveckou turistikou lze analyzovat i jinými metodami.
- Multiplikační modely zkoumají rozsah role cestovního ruchu v ekonomickém rozvoji tím, že odhalují nepřímý efekt s výpočtem, o kolik vzroste určitá veličina (např. zaměstnanost v cestovním ruchu), pokud se vstup (obvykle výdaje návštěvníků) změní o další jednotku (např. 1 EUR).
- Techniky ekonomického oceňování umožňují rozpoznat peněžní hodnoty, které se neodrážejí v tržních hodnotách, jako je ekonomická hodnota rekreace.

ZÁVĚR

Celkově mohou být metody ekonomického hodnocení užitečnými nástroji pro posouzení indikativních ekonomických dopadů změn v ekonomických činnostech nebo podmínkách. Spolehlivost výsledků však ovlivňují například předpoklady a kvalita použitých dat. Všechny metody mají své výhody a nevýhody, jak je uvedeno v tabulce 2.

Tabulka 2. Výhody a nevýhody metod hodnocení ekonomických efektů.

Metody	Výhody	Nevýhody
Popisná statistika	+ využívá existující data + snadné použití + široká škála proměnných	- uvažuje pouze přímé dopady - možné posoudit pouze minulé dopady
Mikroekonomická optimalizace	+ vhodné kromě posouzení současných/minulých dopadů také k provádění některých budoucích předpovědí + možnost získat analytické výsledky s omezenými empirickými daty	- uvažuje pouze přímé dopady - obsahuje několik předpokladů/zjednodušení
Severský model	+ flexibilní + snadno aplikovatelné	- uvažuje především přímé dopady - mohou nastat některé problémy s daty (např. náklady a kvalita)
Vstupně-výstupní model (I-O)	+ možnost posoudit minulé i budoucí dopady + zohledňuje také multiplikační efekty + vhodné i pro dynamické studie + výsledky pro několik proměnných	- neberte v úvahu omezení zdrojů - spíše datově náročné - obsahuje několik předpokladů/zjednodušení
Model obecné rovnováhy (CGE)	+ zohledňuje také multiplikační efekty + možnost posoudit minulé i budoucí dopady + široká škála proměnných + vhodné i pro dynamické studie	- datově náročné - vyžaduje rozsáhlé znalosti (včetně programování) - vyžaduje softwarové licence - obsahuje několik předpokladů/zjednodušení
Analýza nákladů a přínosů (CBA)	+ možnost posouzení minulých i budoucích projektů + možnost seřadit možnosti s jasnými pravidly	- některé přínosy a náklady je obtížné ocenit - může vyloučit některé náklady nebo přínosy
Multiplikační modely	+ zvažuje nepřímé vlivy	- neberte v úvahu omezení zdrojů - obsahuje několik předpokladů/zjednodušení
Odhad	+ umožňuje rozpoznat peněžní hodnoty, které se neodrážejí v tržních hodnotách	- neposuzuje širší ekonomický dopad jevu

Posouzení dopadů může tvůrcům rozhodnutí nabídnout cenné poznatky o okolní ekonomice: o tom, jak jsou různí aktéři a činnosti propojeni a jaké by mohly být širší důsledky jednotlivých změn. Toto porozumění poskytuje dobrý základ pro informovaná rozhodnutí. Stejně jako je znalost ekonomického dopadu důležitá, je nutné v této souvislosti uvažovat i další aspekty. Sociální, kulturní a environmentální dopady způsobené činností lovecké turistiky jsou rovněž zásadními hledisky v rozhodovacích procesech.

Hodnocení ekonomického dopadu se zaměřují na širší okruh. V některých případech může být celkový dopad spíše malý, ale dopad na jednotlivé hospodářské subjekty tvoří významnou položku. Podobně může být obecný dopad pozitivní, ale někteří uživatelé mohou kvůli uvažované změně čelit ekonomickým ztrátám. Dalším pozoruhodným bodem je, že i když ukazatele jako HDP mohou odhalit zajímavá a důležitá sdělení, nejsou to dokonalé ukazatele. Tyto indikátory opomíjí některé důležité aspekty, které mohou výrazně ovlivnit jejich schopnost popsat například dopady na lidské blaho. Celkově vzato mohou hodnocení ekonomického dopadu podpořit osoby s rozhodovací pravomocí, ale je moudré pamatovat na omezení a limity každé metody a studie.

LITERATURA PRO ROZŠÍŘENÍ POHLEDU NA DANOU PROBLEMATIKU

Na závěr bychom rádi doporučili literaturu k prohloubení problematiky o ekonomickém hodnocení. Nejprve doporučujeme nahlédnout do našeho průvodce, který shrnuje klíčové aspekty běžných metod hodnocení se zaměřením na kontext lovecké turistiky. Doporučujeme také, abyste se seznámili s našimi případovými studiemi, které jsou příkladem aplikace některých metod v prostředí lovecké turistiky. Pokud byste se chtěli v rámci některých metod ponořit hlouběji do dané problematiky, mohou být užitečné následující knihy.

Mikroekonomie

Putman, R. (2012). Scoping the economic benefits and costs of wild deer and their management in Scotland. Scottish Natural Heritage Commissioned Report No. 526.

Vstupně-výstupní model

Tan, R.R., Aviso, K.B., Promentilla, M.A.B., Yu, K.D.S. & Santos, J.R. (2019). Input-Output Models for Sustainable Industrial Systems: Implementation Using LINGO. Lecture Notes in Management and Industrial Engineering. Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-13-1873-3

Modely obecné rovnováhy

Burfisher, M. (2017). Introduction to Computable General Equilibrium Models. 2nd edition. Cambridge University Press. https://doi.org/10.1017/9781316450741

VSTUPNĚ - VÝSTUPNÍ ANALÝZA LOVECKÉ TURISTIKY V ČESKÉ REPUBLICE
DOPADY LOVECKÉ TURISTIKY NA ČESKOU REPUBLIKU

Základní informace. Zjišťování vlivu lovecké turistiky je důležitou složkou pro rozhodování o budoucí podpoře rozvoje lovecké turistiky v České republice. Oblast se potýká s velkými problémy vyplývajícími z místního přemnožení spárkaté zvěře, která způsobuje značné škody na lesních a zemědělských plochách. Na většině území v ČR je myslivost zájmovou činností provozovanou místními obyvateli s cílem péče o zvěř a její životní prostředí. Vzhledem k tomu, že se jedná o nákladovou položku, počet lidí věnujících se myslivosti neustále klesá. Lovecká turistika tak může být jedním z řešení, které bude mít i významný ekonomický dopad na celé území.

Výzkumná otázka. Cílem výzkumu bylo zjistit, jaký přímý a nepřímý ekonomický dopad mají poplatkoví lovci na danou destinaci. V rámci ČR je lov nabízen především ve státních podnicích Lesy ČR a Vojenské lesy a statky ČR. Lovy nabízejí i myslivecké spolky, ale především na základě spolupráce se známými myslivci, kteří lokalitu pravidelně navštěvují, případně zde lovy pořádají cestovní kanceláře a agentury. V České republice je celkem 6 879 260 ha honebních pozemků, což představuje 88 % celkové výměry.

Materiály a metoda. Pro zjištění ekonomického dopadu lovecké turistiky bylo nutné identifikovat odvětví související s loveckou turistikou. Na základě vstupně-výstupního modelu (I-O) bylo možné vypočítat produkční multiplikátor, který měří výši celkové produkce odvětví vytvořené v ekonomice země nárůstem výdajů účastníků cestovního ruchu. Nepřímé dopady výdajů cestovního ruchu na ekonomiku oblasti jsou hodnoceny multiplikátory získanými ze symetrické Input-Output tabulky za rok 2015. (SIOT tabulky zveřejňuje každých 5 let Český statistický úřad). Dalším důležitým údajem je počet myslivců, kteří se účastní poplatkového lovu, jejich spotřeba a rozložení spotřeby. Počet zahraničních lovců byl stanoven na základě počtu vydaných loveckých lístků cizincům a počet domácích myslivců byl stanoven kvalifikovaným odhadem na základě celkového počtu domácích myslivců a myslivců, kteří v dotazníkovém šetření uvedli, že byli poplatkově lovit v České republice. Výdaje myslivců a jejich struktura byly zjišťovány pomocí dotazníkového šetření. Studie byla provedena s modelem IO kvůli jeho schopnosti vyhodnotit krátkodobý a dlouhodobý dopad včetně přímých, nepřímých a vyvolaných účinků, a to i s ohledem na omezení zdrojů dat.

Výsledky.

Následující multiplikátory byly stanoveny na základě výpočtů SIOT.

Položka	Multiplikátor
Zemědělství a produkce potravin	1,905346
Doprava	2,053347
Ubytovací služby	1,669584
Stravování a pohostinství	1,817158
Ostatní zpracovatelský průmysl	1,553307
Ostatní služby cestovního ruchu	2,025287
Celkem	**1,837338**

Výpočet pokrýval rok 2019, tedy dobu před pandemií koronaviru. V roce 2019 navštívilo Českou republiku 10 634 zahraničních poplatkových lovců. Z dotazníkového šetření mezi zahraničními lovci vyplynulo, že za lovecký pobyt utratí v průměru 1 776 EUR. Pokud tuto částku vynásobíme zjištěným multiplikátorem, dostaneme hodnotu přímého a nepřímého dopadu lovecké turistiky na českou ekonomiku ve výši 34,7 milionů eur. V roce 2019 trvale vykonávalo právo myslivosti 89 309 držitelů platných loveckých lístků. Z dotazníkového šetření mezi českými myslivci vyplynulo, že poplatkových lovů se účastní 24,4 % z nich. Ukázalo se také, že za poplatky za lov a související služby utratí v průměru 1 181 EUR. Pokud tuto částku vynásobíme zjištěným multiplikátorem, dostaneme hodnotu přímého a nepřímého dopadu lovecké turistiky na českou ekonomiku ve výši 47,3 milionů eur. Celkově tedy lovecká turistika přinesla v roce 2019 do české ekonomiky 82 milionů eur.

Závěry. Přestože analýza vstupů a výstupů vychází z řady předpokladů, je vhodné ji využít pro stanovení přímých i nepřímých dopadů lovecké turistiky na místní, regionální i národní úrovni. Přestože je dopad z hlediska celkové produkce ČR relativně malý, je důležité si uvědomit, jak malý počet myslivců generuje značné částky. Význam a dopad jsou především místního charakteru, především ve venkovských oblastech. Poplatkoví lovci v destinaci utratí průměrně přibližně 3,7krát více než běžný turista. Cílem do budoucna bude podpora lovecké turistiky, zvýšení počtu poplatkových lovců v destinacích a zároveň zkvalitnění služeb loveckého hostitele a tím zvýšení celkových výdajů loveckých turistů.

APPENDIX D.
The extended summary and case study of Hungary in Hungarian

A VADÁSZATI TURIZMUSNAK VAN HATÁSA A GAZDASÁGRA?
– ÚTMUTATÓ A VADÁSZATI TURIZMUS GAZDASÁGI HATÁSÁNAK ÉRTÉKELÉSÉHEZ

BŐVÍTETT ÖSSZEFOGLALÓ

Célkitűzés

Ez az útmutató a HUNTOUR projektnek a része, amely oktatási anyagokat készít, így támogatva a vadászati turizmus fejlesztésével kapcsolatos döntéseket az Európai Unió országaiban.

Ennek az útmutatónak a fő célja, hogy megismertesse a diákokkal, valamint a vadászati turizmus különböző érdekelt feleivel a vadászati turizmus gazdasági hatásának értékelését különböző regionális szinteken. További cél alapvető ismeretek átadása a közgazdaságtan értékelési módszereiről, és ezáltal segíteni az olvasót a vadászati turizmusra, valamint gazdasági hatásair összpontosító kutatások megértését, értékelését és értelmezését.

Bevezetés a vadászturizmusba

A turizmus a legtöbb országban az egyik legfontosabb gazdasági ágazat. Az elmúlt évtizedekben, a koronavírus-pandémia előtt a turizmust a folyamatos terjeszkedés és a diverzifikáció jellemezte, így a világ egyik legnagyobb és leggyorsabban növekvő gazdasági ágazatává vált. Több millió munkahelyet teremt, és sok országban a turizmus adja a bruttó hazai termék nagy részét. Nemcsak a makrogazdasági mutatókkal leírható gazdaságra van hatással, hanem a regionális fejlődésre, például az infrastruktúra fejlesztésére is.

A vadászati turizmus azon alapul, hogy szolgáltatásokat nyújt azoknak a vadászoknak, akik a mindennapi környezetükön kívüli helyszínekre utaznak vadászni. A vadászat Európában a vadon élő állatok fontos hasznosítása, valamint a kikapcsolódás népszerű formája a természetben, jelentős üzletág és a kulturális örökség fontos része. A turizmus speciális formájaként a vadászati turizmus kiegészítő bevételi forrást jelenthet a periférikus vagy fejletlen régiók számára, ahol az idegenforgalom más formái gyengén fejlettek. A vadászati turizmus jelentősen pozitív hatással lehet a helyi közösségre. Számos kutató kimutatta, hogy a vadászati turizmusnak jelentős gazdasági hatásai vannak, mind közvetlenül a vadászok kiadásai, mind közvetetten a multiplikátorhatások révén. A jövedelemtermelésen, munkahelyteremtésen, az általános és specifikus adókon, valamint az engedélyezési díjakon keresztül a vadászati tevékenységek gazdaságilag hozzájárulnak a helyi, regionális és nemzeti gazdaságokhoz. Mindezek mellett a vadgazdálkodás nagyobb részét is finanszírozza, ezzel pedig hozzájárul a vidékfejlesztéshez.

A vadon élő állatok populációi természeti erőforrásként meghatározzák a vadászati turizmus ökológiai korlátait. A vadászati turizmus nem veszélyeztethet vagy zsákmányolhat ki fajokat. Bizonyos körülmények között a vadászati turizmus hozzá is járulhat a biológiai sokféleség védelméhez, amikor korlátozza a túlszaporodott populáció méretét. Emellett vidéki térségekben a vadászati turizmusból származó gazdasági haszon a természetvédelmi erőfeszítéseket is támogathatják, hiszen, ha a vadállománynak gazdasági értéke van, akkor a vad nem csak problémaforrást jelent.

Bevezetés a gazdasági hatásvizsgálatba

A vadászati turizmus sokféleképpen befolyásolhatja a környező gazdaságot. A turisták döntései befolyásolják a helyi szállás és vendéglátás, valamint a vadászati szolgáltatások és létesítmények iránti keresletet, továbbá a terület egyéb szabadidős tevékenységekre való felhasználásának lehetőségeit. A vadászati turizmussal kapcsolatos áruk iránti kereslet változása a kínálati oldalhoz kapcsolódik: milyen árukat és szolgáltatásokat kínálnak, hogyan állítják elő őket, milyen nagy beruházásokra van szükség az új kereslet kielégítéséhez, vagy hogyan és mikor érhetőek el az áruk és szolgáltatások az ügyfelek számára. Ezenkívül a kormányok és hatóságok kölcsönösen befolyásolják egymást a vadászati és a turisztikai szektorral.

A gazdasági változások különböző szinteken azonosíthatók. Felismerhetőek mikroökonómiai szinten, ami azt jelenti, hogy a vadászati turizmus hatással van a háztartásokra és a vállalkozásokra. Ilyen hatások például a háztartások fogyasztási döntéseiben és a vállalatok termelési szintekre vonatkozó döntéseiben bekövetkezett változások. Bár ezek a változások relevánsak és érdekesek, a gazdasági hatáselemzés jellemzően szélesebb perspektívát vesz igénybe. A hangsúly egyetlen gazdasági szereplő helyett a vizsgált földrajzi régióban élő és működő szereplők csoportján van.

A vadászati turizmusnak makrogazdasági hatásai is lehetnek, ami arra utal, hogy a vadászati turizmus az egész gazdaságra kiterjedő hatásokat válthat ki. Ez a hatás akkor fordul elő, ha például a regionális termelés vagy a foglalkoztatás az idegenforgalmi tevékenységek miatt megváltozik. A hatások egy része a vadászturizmusban szorosan érintett szereplőket, például a vadászoknak szolgáltatásokat nyújtó vállalkozásokat vagy magukat a vadászturistákat érinti. Ezenkívül ez a kezdeti hatás elkezdhet terjedni a gazdaságban, ami azt jelenti, hogy az eredeti esemény más vállalatokat és embereket is érint.

A gazdasági hatásokat a keletkezésük folyamata alapján lehet osztályozni. **A közvetlen hatások** gyakran a vadászturisták kiadásaira vonatkoznak a vizsgált régióban. Ennek eredményeként például a helyi vadászati szolgáltatók új alkalmazottakat vehetnek fel, és a regionális termelés értéke növekedhet. Ahogy a turizmushoz kapcsolódó termékek iránti kereslet növekszik, úgy az e termékeket kínáló vállalatoknak több inputot kell felhasználniuk, például az alvállalkozásba adott vendéglátóipari szolgáltatásokat vagy üzemanyagot a szállítmányozási szolgáltatások nyújtásához. A termelési inputok iránti megnövekedett kereslet **közvetett hatásokat** vált ki. A közvetlen és közvetett hatások új munkahelyeket és ezáltal jövedelem növekedést eredményeznek. Ha az új alkalmazottak ezeket a többletjövedelmeket regionálisan előállított áruk és szolgáltatások vásárlására költik, az tovább fogja befolyásolni a régió gazdaságát. Ezt nevezzük **indukált hatásoknak**. A **teljes hatás** magában foglalja mind a három réteget. A közvetlen és a teljes hatás összevetésével számolhatjuk ki a **multiplikátor hatást**.

Miért érdemes tehát értékelni a vadászati turizmus gazdasági hatásait? Ez akkor merül fel, amikor az idegenforgalmi tevékenységek szélesebb közönséget érintenek vagy érinthetnek, és amikor döntéseket hoznak ezekről a tevékenységekről. Talán néhány régió felismerte, hogy elegendő vadállományuk van ahhoz, hogy növeljék a vadászturisták áramlását a régióba. Mielőtt új idegenforgalmi infrastruktúrába fektetnének be, bölcs dolog lenne számszerűsíteni az ilyen növekedésben rejlő gazdasági lehetőségeket. Ebben az összefüggésben a potenciál kiaknázása befolyásolhatja többek között a vállalatok bevételeit, a háztartások jövedelmét, az önkormányzatok adóbevételeit és a regionális foglalkoztatási rátát. Egy másik régióban szóba kerülhet a vadászati engedélyek helyi és vadászturisták közötti megosztása a vadászturizmus igényeinek megfelelően. A gazdasági hatások ismerete mindkét esetben támogatja a döntéshozatalt.

A döntéshozatalban részt vehetnek az engedélyeket kiosztó és a politikai intézkedések elindítására jogosult hatóságok, az idegenforgalmi termékeket szervező és a vállalkozói tevékenységbe befektető vállalatok, továbbá azok az állampolgárok, akik megítélik, hogy a gazdasági előnyök meghaladják-e a felismert károkat, de más szereplők is. Mindegyikük számára előnyösek a hatásvizsgálatok, amelyeknek célja, hogy áttekintést nyújtsanak a szóban forgó helyzetről.

Gazdasági hatásvizsgálati anyag és módszertan

A módszerek változatai különböző kérdések megválaszolását teszik lehetővé. A vadászati turizmus vagy bármely más jelenség nemzeti vagy regionális gazdaságra gyakorolt hatása többféle módszerrel értékelhető. Minden értékelési módszernek megvannak a maga erősségei, és a módszer kiválasztása a vizsgálati kérdéstől függ. A javasolt kérdés mellett a módszerválasztást az adatok és egyéb erőforrások elérhetősége is befolyásolhatja. Az 1. táblázatban összefoglaltunk néhány gyakori kérdést a vadászati turizmus gazdasági hatásával kapcsolatban, és megfelelő módszereket javasoltunk arra, hogy válaszokat találjunk kérdéseire.

1. táblázat. Módszer kiválasztása – gyakori kutatási kérdések és példák az eredményekre

Lehetséges kutatási kérdések	Megfelelő módszerek	Példa az eredményekre
Milyen **közvetlen gazdasági hatása** van a vadászturizmusnak a vizsgált régióban?	Leíró statisztika Mikroökonómiai optimalizálás Skandináv modell	A jövedelemre és a foglalkoztatásra gyakorolt hatás a vizsgált régióban.
Mi a vadászati turizmus össz**gazdasági hatása** (beleértve a multiplikátorhatást is)?	Input-output modellek Számítható általános egyensúlyi modellek Skandináv modell	Hatás a nemzeti vagy regionális termelésre, a bruttó hazai termékre (GDP), a foglalkoztatásra, a jövedelemre... stb.
Milyen **(jövőbeli) gazdasági hatásai** lesznek a tervezett vadászturisztikai beruházásoknak/politikai intézkedéseknek/terveknek?	Költség-haszon elemzés Input-output modellek Számítható általános egyensúlyi modellek Skandináv modell	A beruházás/politikai intézkedés/terv költségei és hasznai. Hatás a nemzeti vagy regionális termelésre, a GDP-re, a foglalkoztatásra, a jövedelemre... stb.
Milyen **(múltbeli) gazdasági hatásai** voltak a vadászturizmusban vizsgált változásnak?	Leíró statisztika Mikroökonómiai optimalizálás Skandináv modell Költség-haszon elemzés Input-output modellek Számítható általános egyensúlyi modellek	A módszertől függően, pl. a jövedelemre és a foglalkoztatásra gyakorolt hatás, a változás költségei és haszna, hatás a nemzeti vagy regionális termelésre, a GDP-re, a foglalkoztatásra... stb.
Milyen értéket képvisel például az ökoszisztéma-szolgáltatások olyan változása, amely nem tükröződik a piaci árakban?	Gazdasági értékelési módszerek	Mennyit hajlandóak az emberek fizetni némi változásért. Mennyiben járul hozzá egy összetevő vagy attribútum az értékhez.

A KÜLÖNBÖZŐ MÓDSZEREK NÉHÁNY JELLEMZŐJE

Leíró statisztika

- A hivatalos statisztikák és más meglévő adatbázisok nyílt hozzáférésű anyagokat biztosítanak, amelyek felhasználhatók a gazdasági helyzet leírására és a gazdasági hatások értékelésére.
- A nemzeti és regionális számlák áttekintést nyújtanak a gazdaságokról.
- A turisztikai szatellitszámlák kiegészítik a turizmusra vonatkozó adatokat.
- A vadászatturizmusra összpontosító statisztikai anyagok kutatási célokra rendelkezésre állhatnak pl. a nemzeti hatóságoktól.
- A hatásvizsgálatok kiindulópontja általában a meglévő vagy újonnan gyűjtött adatok leírása, adaptálása, statisztikai elemzése.

Közvetlen gazdasági hatás – Skandináv modell

- A Skandináv modell a turizmus regionális gazdaságra gyakorolt hatásának értékelését jelenti, és az idegenforgalom gazdasági hatását az idegenforgalmi fogyasztás alapján számítja ki.

- Az északi modell a turizmus gazdasági és foglalkoztatási hatásait méri meghatározott térbeli környezetben, és két megközelítés létezik:
    - **A jövedelemmodell** a turizmus helyi vállalatokra gyakorolt gazdasági hatásait elemzi a helyi turisztikai ágazaton belüli turisztikai cégek adatainak összegyűjtésével.
    - **A kiadási modell** a turisták kiválasztott régióban elköltött pénzösszegeit **és** különböző turisztikai szolgáltatásokra és termékekre fordított összes kiadásait vizsgálja.
- Az adatbázisokat elsősorban interjúkból és felmérésekből állítják össze. Egyes adatok gyűjtése költséges és időigényes lehet, az adatok nem megfelelő minőségűek lehetnek (pl. turisztikai vállalkozások együttműködési hajlandóságától, megbízhatatlan adatok gyűjtésétől és a válaszadók nem megbízható költésbecslésétől függően)
- Az eredmények inputként használhatók más tanulmányokban, például kiszámítható általános egyensúlyi modellek, költség-haszon elemzés vagy input-output modellek használata esetén.

Mikroökonómiai optimalizálás

- A költségek és a bevételek a termelés mértékével együtt változnak.
- A termelésoptimalizálás célja a maximális profitot eredményező termelési szint megtalálása.
- Empirikus adatok segítségével feltárható a termelés-profit függvény.
- A profitfüggvény maximuma matematikai módszerekkel meghatározható.

Gazdasági modellezés – Input-output modellek (I-O modellek)

- Az input-output modell lehetővé teszi a gazdasági rendszer iparágai közötti kölcsönös interdependenciák azonosítását, mivel az egyik iparág inputjai egy másik iparág outputjai.
- Ezek a kapcsolatok végső soron a kereslet és a kínálat közötti egyensúlyhoz vezetnek a gazdaság egészében.
- Az Input-Output modell a vadászturizmus közvetlen és közvetett gazdasági hatását fedi le.
- A szimmetrikus input-output tábláknak (SIOT - *symmetric input-output tables*) köszönhetően lehetőség van a termelési multiplikátorok azonosítására, és így az iparágon belüli multiplikátorhatás értékelésére.

Gazdasági modellezés – Számítható általános egyensúlyi modellek (CGE - *Computable General Equilibrium*)

- A CGE modelleket a szélesebb körű gazdasági hatás értékelésére használják.
- A modellek a gazdaságok egészét írják le olyan egyenletrendszerekkel, amelyek megalapozott közgazdasági elméletekből származnak.
- A modellezési adatbázisokat elsősorban hivatalos statisztikákból állítják össze.

- A CGE modellezési eredményei mind a közvetlen és mind közvetett hatásokat is rögzítik.
- A makroszintű hatásokra összpontosítanak, és a gyakran jelentett eredményei a GDP, a foglalkoztatás, a jövedelem és a kereskedelem változásai.

Költség-haszon elemzés (CBA - *Cost-benefit analysis*)

- A CBA azokat a pénzben kifejezett hasznokat és költségeket értékeli, amelyeket a vizsgált projekt, politikai intézkedés vagy egyéb jelenség okozna vagy okozott az elemzésben szerephez jutó személyek számára.
- A nettó jelenérték (NPV - *Net present value*) a jelenértékre diszkontált költségek és hasznok különbségét jelzi.
- A CBA-eredmények felhasználhatók annak kiválasztására, hogy melyik projektet vagy irányelveket fogadják el. A döntési szabály tehát a legnagyobb pozitív NPV-vel rendelkező alternatíva kiválasztása.

Egyéb módszerek

- A vadászati turizmussal kapcsolatos jelenségek gazdasági következményei más módszerekkel is elemezhetők.
- Az multiplikátor modellek a turizmus gazdasági fejlődésben betöltött szerepének mértékét vizsgálják azáltal, hogy feltárják a közvetett hatást és kiszámítják , hogy egy adott mennyiség mennyit fog növekedni (pl. foglalkoztatás az idegenforgalomban), ha egy input (általában a látogatók költségei) egy további egységgel (pl. 1 EUR) változik.
- A gazdasági értékelési technikák lehetővé teszik olyan monetáris értékek felismerését, amelyek nem tükröződnek a piaci értékekben, mint például a rekreáció gazdasági értéke.

ZÁRÓ GONDOLATOK

Összességében, a gazdasági értékelési módszerek hasznos eszközök lehetnek az gazdasági tevékenységben vagy feltételek változásaiban bekövetkezett indikatív gazdasági hatásainak értékeléséhez. Például a feltételezések és a felhasznált adatok minősége befolyásolja az eredmények megbízhatóságát. Minden módszernek megvannak a maga előnyei és hátrányai, amint az a 2. táblázatban látható.

2. táblázat. A gazdasági hatásokat értékelő módszerek előnyei és hátrányai.

Módszer	Előnyök	Hátrányok
Leíró statisztika	+ kihasználja a meglévő adatokat + könnyen használható + változók széles választéka	- csak a közvetlen hatásokat veszi figyelembe - csak a múltbeli hatások értékelése lehetséges
Mikroökonómiai optimalizálás	+ a jelenlegi/múltbeli hatások felmérésén felül jövőbeli előrejelzések készítésére is alkalmas + analitikai eredmények nyerhetőek korlátozott empirikus adatokból	- csak a közvetlen hatásokat veszi figyelembe - számos feltételezést/ egyszerűsítést tartalmaz
Skandináv modell	+ rugalmas + könnyen alkalmazható	- elsősorban közvetlen hatásokat vesz figyelembe - bizonyos adatkihívással szembesülhet (pl. költségekkel és minőséggel)
Bemenet-kimenet	+ lehetséges a múltbeli és jövőbeli hatások értékelése + figyelembe veszi a multiplikátorhatásokat is + dinamikus vizsgálatokra is alkalmas + több változó a jelentéshez	- nem veszi figyelembe az erőforrás-korlátozásokat - meglehetősen adatintenzív - számos feltételezést/ egyszerűsítést tartalmaz
Számítható általános egyensúlyi modellek (CGE)	+ figyelembe veszi a multiplikátorhatásokat is + lehetséges a múltbeli és jövőbeli hatások értékelése + változók széles választéka + dinamikus vizsgálatokhoz is alkalmas	- adatintenzív - kiterjedt ismereteket igényel (beleértve a programozást is) - szoftverlicenceket igényel - számos feltételezést/ egyszerűsítést tartalmaz
Költség-haszon elemzés (CBA)	+ lehetséges a múltbeli és jövőbeli hatások értékelése + Egyértelmű szabályokkal rangsorolhatóak a lehetőségek	- néhány haszon és költség nehezen értékelhető - kizárhat bizonyos költségeket vagy hasznokat
Szorzó modellek	+ figyelembe veszi a közvetett hatásokat	- nem veszi figyelembe az erőforrás-korlátozásokat - számos feltételezést/egyszerűsítést tartalmaz
Értékelés	+ lehetővé teszi a piaci értékekben nem tükröződő pénzbeli értékek felismerését	- nem méri fel a jelenség szélesebb körű gazdasági hatását

A hatásvizsgálatok értékes betekintést nyújthatnak a döntéshozók számára a gazdasági folyamatokba: hogyan kapcsolódnak egymáshoz a különböző szereplők és tevékenységek, és milyen szélesebb körű következményei lehetnek az egyes változásoknak. Ennek megértése jó alapot biztosít a megalapozott döntések meghozatalához. Bár a gazdasági hatás felismerése fontos, a többi szempontot is észben kell tartani. A vadászati turisztikai tevékenységek által okozott társadalmi, kulturális és környezeti hatások a döntéshozatali folyamatok alapvető szempontjai.

A gazdasági hatásvizsgálatok a nagyléptékű hatásokra fókuszálnak. Egyes esetekben a szélesebb körű hatás meglehetősen csekély, de az egyes gazdasági szereplőkre gyakorolt hatás jelentős lehet. Hasonlóképpen, az általános hatás pozitív lehet, de egyes szereplők gazdasági veszteségekkel szembesülhetnek a megfigyelt változás miatt. Ezért érdemes elgondolkodni azon, hogy a vizsgált gazdasági változás igazságos fejlődéshez vezet-e. Egy másik figyelemre méltó szempont, hogy bár az olyan mutatók, mint a GDP, érdekes és fontos üzeneteket tárhatnak fel, nem tökéletes mutatók. Ezek a mutatók figyelmen kívül hagynak néhány fontos szempontot, amelyek súlyosan korlátozhatják például az emberi jólétre gyakorolt hatások leírását. Mindent egybevetve, a gazdasági hatásvizsgálatok támogathatják a döntéshozókat, de nem árt észben tartani az egyes módszerek és tanulmányok korlátait.

TOVÁBBI OLVASMÁNYOK

Végezetül szeretnénk javasolni néhány olvasnivalót, ha többet szeretne megtudni a gazdasági értékelésről. Először is azt javasoljuk, hogy tekintse meg az útmutatónkat, amely összefoglalja a közös értékelési módszerek kulcsfontosságú szempontjait a vadászati turizmussal összefüggésben. Javasoljuk továbbá, hogy ismerkedjen meg esettanulmányainkkal, amelyek példát mutatnak egyes módszerek vadászturizmusban való alkalmazására. Ha mélyebbre szeretne merülni néhány módszerben, a következő könyvek hasznosak lehetnek.

Mikroökonómia

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A GÍMSZARVAS-POPULÁCIÓ MÉRETÉNEK HATÁSA A VADGAZDÁLKODÁS PÉNZÜGYI EREDMÉNYÉRE

Háttér. A szarvasfélék és a vaddisznó populációi folyamatos növekedést mutatnak Európában. Magyarországon a gímszarvas, az őz és a vaddisznó populációja a legnagyobb. A gímszarvas becsült létszáma 1960 és 2020 között nyolcszorosára nőtt, ami stabil árubázist teremtett a kereskedelmi célú vadászathoz. A létszám növekedése mellett a gímszarvasok különösen kiemelkedő trófeaminőséget mutatnak, ami vonzza a vendégvadászokat, és figyelemre méltó jövedelmet termel. Az 1990-es évek közepén bekövetkezett politikai változások óta azonban a növekvő magyarországi életszínvonal lehetővé tette a hazai vadászok számára, hogy ne adjanak el minden vadászati lehetőséget.

A növekvő populációméret több vadászati lehetőséget eredményez, és így potenciálisan több bevételt generál. Ez a körülmény jobban kielégíti a vendégvadászok igényeit, akik általában a rövid látogatásokat részesítik előnyben, és legalább néhány lehetőség közül szeretnék kiválasztani a kívánt trófeát. Másik oldalról viszont a populáció méretének növelése aktívabb vadgazdálkodást igényel, beleértve a ragadozók apasztását, az etetést, és nagyobb a vadkárok mértékét is. Mindezek növelik a vadgazdálkodási költségeket, és bizonyos vadsűrűségen túl a populáció méretének növekedése már jelentős károkat okozhat a természeti környezetben, és ronthatja akár a trófeaminőséget is.

Kutatási kérdés. A tanulmány célja, hogy feltárja a gímszarvaspopuláció méretének a teljes bevételre, a vadászati turizmusból származó bevételre és a pénzügyi egyenlegre gyakorolt hatásait. A hipotézis szerint minél nagyobb a populáció mérete, annál több bevétel keletkezik, különösen a kereskedelmi vadászatból, de egy határon túl a költségek növekedése a pénzügyi eredmény csökkenéséhez vezet.

Anyagok. Az egyes vadfajok populációméretét a vadgazdálkodási egységek minden évben megbecsülik. Mivel nincs szabványosított becslési módszer, a populációméret-statisztikák pontossága nem ismert. Vannak olyan számítások, amelyek jelentős ellentmondásokat tártak fel a statisztikák és a populációdinamikai modellek között. Az éves hasznosítási adatok viszont sokkal megbízhatóbbak, mivel olyan hivatalos (hatósági) folyamatokhoz kapcsolódnak, mint a kötelező trófeamérés, a hús élelmiszer-biztonsági ellenőrzése stb. Feltételeztük, hogy az éves hasznosítás kielégítő mutatója a populáció méretének, ezért az egyes megyékben az éves gímbika hasznosítást minden évben egy-egy mintapontnak tekintettük, és független változóként kezeltük. A teljes bevételt, a vendég vadászatból származó bevételt és a pénzügyi egyenleget mint függő változókat szintén évente és megyénként vettük figyelembe.

Módszer. Páronkénti regresszióanalízist végeztünk a változók közötti kapcsolat feltárására.

Eredmények. A teljes jövedelem erős pozitív kapcsolatban áll az éves gímbika hasznosítással, és ugyanez a pozitív kapcsolatot áll fenn a vendégvadászatból származó jövedelem esetében is, bár e kapcsolat gyengébb. A pénzügyi egyenleg alacsonyabb gímbika hasznosítási szinteken szintén pozitív kapcsolatot mutat, de egy felső határértéknél magasabb hasznosítás (és egyben állománynagyság) után a pénzügyi eredmény csökkenésnek indul.

Következtetések. A vadászati bevételeket Magyarországon nagymértékben a gímszarvas hasznosítása határozza meg, mivel ez az ágazat fő bevételi forrása. A magas gímszarvas lelövés nagy valószínűséggel magas vadászati szolgáltatási bevétellel jár együtt, de a teljes bevételekhez képest itt már gyengébb a kapcsolat, tekintettel arra, hogy a vadászati szolgáltatások nagyságát egyéb tényezők, például a helyszín, a hírnév stb. is befolyásolják. A magasabb összbevétel a vadásztársaságok magasabb tagdíjaiból is származhat. Egy bizonyos pont után a magasabb gímbika hasznosítás által jelzett magasabb szarvaslétszám fenntartása egyre növekvő vadgazdálkodási költségekkel (határköltséggel) jár, amelyek meghaladják a bevételnövekedést (határbevétel), és ennek következtében a pénzügyi egyenleg csökkenni kezd.

APPENDIX E.
The extended summary and case study of Serbia in Serbian

ДА ЛИ ЛОВНИ ТУРИЗАМ ИМА УТИЦАЈ НА ПРИВРЕДУ?
– ВОДИЧ ЗА ПРОЦЕНУ ЕКОНОМСКОГ УТИЦАЈА ЛОВНОГ ТУРИЗМА

Продужени резиме

Циљеви

Овај водич део је пројекта HUNTOUR који има за циљ да обезбеди едукативне материјале и самим тим пружи подршку доношењу одлука о развоју ловног туризма у државама Европске уније.

Основни циљ водича је упознавање студената, као и интересних страна у ловном туризму, са проценом економског утицаја ловног туризма на различитим регионалним нивоима. Сврха је пружање основних знања о методама економске евалуације и сходно томе помоћ при разумевању, процени и интерпретацији истраживања која се фокусирају на ловни туризам и утицај ове делатности на привреду у окружењу.

Увод у ловни туризам

Туризам спада у важније привредне секторе већине земаља. Током протеклих деценија, пре пандемије COVID-19, забележена је континуирана експанзија и диверзификација туризма, чиме је постао један од највећих и најбрже растућих привредних сектора у свету. Туризам ствара милионе радних места и у многим земљама остварује висок удео у бруто домаћем производу. То утиче не само на економију, што је видљиво кроз макроекономске показатеље, већ и на регионални развој на пример у виду побољшања инфраструктуре.

Ловни туризам заснива се на пружању услуга ловцима који путују на дестинације ван свог блиског окружења ради лова. Лов спада у важан вид коришћења дивљих животиња у Европи, као и популаран облик рекреације у природи, значајан облик пословања и важан део културног наслеђа. Као специфичан вид туризма, ловни туризам може бити додатни извор прихода за руралне или неразвијене регије у којима су други облици туризма слабо развијени. Ловни туризам може имати значајан позитиван утицај на локалну заједницу. Бројни истраживачи показали су да ловни туризам има значајан економски утицај, како кроз директну потрошњу ловаца, тако и кроз индиректне мултипликативне ефекте. Ловне активности економски доприносе локалној, регионалној и националној привреди кроз стварање прихода, нових радних места, општих и посебних пореза и накнада за дозволе. Поред тога, већина средстава за управљање дивљим животињама обезбеђује се кроз ловнотуристичке активности, чиме се доприноси и руралном развоју.

Дивљи свет и дивљач су природни ресурси, а њихове популације одређују еколошке границе за ловни туризам. Ловни туризам не сме да угрожава или претерано искоришћава одређену врсту дивљачи. У неким условима, ловни туризам може допринети заштити биодиверзитета приликом контролисања прекобројних популација. Економски ефекти које ловни туризам доноси руралним пределима значајно могу побољшати напоре за очување врста, из разлога што се одређеној популацији може дати економска вредност и стога дивљач престаје да се посматра само као проблематична.

Увод у процену економског утицаја

Ловни туризам може утицати на локалну привреду на много начина. Примера ради, одлуке туриста утичу на потражњу локалних смештајних и угоститељских услуга, ловачких услуга и објеката, као и на могућност коришћења простора за друге рекреативне активности.

Промене у тражњи у ловном туризму повезане су са страном понуде: која се добра и услуге нуде, како се производе, колико су велике инвестиције потребне да би се задовољила нова потражња, или како и када су добра и услуге доступне за купце. Штавише, власт и друге надлежне институције имају утицаја, а и на њих утичу сектор ловства и сектор туризма.

Економске промене могу се идентификовати на различитим нивоима. Могу се препознати на микроекономском нивоу, што имплицира да ловни туризам утиче на домаћинства и предузећа. Примери таквих ефеката су промене у одлукама о потрошњи домаћинстава и одлука компанија о обиму производње. Иако су ове промене релевантне и занимљиве, анализа економског утицаја обично узима ширу перспективу. Фокус није на једном економском актеру, већ на групи актера који живе и делују у оквиру проучаваног региона.

Ловни туризам може изазвати и макроекономске ефекте, што сугерише да ловни туризам може да утиче на целокупну привреду. Такав утицај дешава се када вредност регионалне производње или стопе запослености промени услед туристичких активности. Неки од ефеката подразумевају актере који су блиско повезани са ловним туризмом, као што су компаније које пружају услуге ловцима, или самим ловцима туристима. Поред тога, овај почетни утицај може изазвати циркулацију у економији, што значи да иницијални догађај утиче и на друге компаније и субјекте.

Економски ефекти се могу класификовати према процесу на основу ког се ефекти стварају. **Директни ефекти** често се односе на потрошњу ловаца туриста у истраживаном региону. Као резултат, примера ради, локални пружаоци ловнотуристичких услуга могу понудити нова радна места и вредност регионалне производње могла би порасти. Како се потражња за туристичким производима повећава, предузећа која пружају ове производе мораће користити више инпута, на пример подуговорене угоститељске услуге или гориво за услугу превоза. Ова повећана потражња за инпутима производње створиће **индиректне ефекте**. Директни и индиректни ефекти резултираће отварањем нових радних места, а самим тим и повећањем прихода. Када нови запослени потроше ове приходе на куповину робе и услуга произведених у региону, остварiће се додатни утицај на

економију региона. Такав утицај се назива **индукованим ефектима**. **Укупан утицај** обухвата ова три дела. Када се упореде директни ефекти и укупан утицај, може се израчунати **мултипликовани ефекат**.

Зашто је значајно проценити економски утицај ловног туризма? Интерес се јавља када туристичке активности утичу или би могле да утичу на ширу јавност која доприноси доношењу одлука о тим активностима. Могуће је да неки регион препозна да има довољне популације дивљачи и да би могао повећати прилив ловних туриста. Пре него што инвестирају у нову туристичку инфраструктуру, требало би квантификовати економски потенцијал таквог раста. Примера ради, реализација туристичких потенцијала могла би да утиче на приходе компанија, плате домаћинстава, приходе од пореза и регионалну стопу запослености између осталог. У другој регији може доћи до расправе о расподели ловачких дозвола између локалних ловаца и ловаца туриста како би се задовољили захтеви ловног туризма. У оба случаја, знање о економском утицају пружа подршку доношењу одлука.

Одлуке могу доносити институције које издају дозволе и доносе прописе, компаније које обликују крајњи туристички производ и улажу у предузетништво, грађани који процењују да ли је економска корист већа од штете, као и неки други актери. Сви актери имају корист од процене утицаја која има за циљ да пружи преглед ситуације.

Методе и материјали за процену економског утицаја

Варијације у методама пружају одговоре на различите врсте питања. Тако је утицај ловног туризма или било које друге појаве на националну или регионалну економију могуће проценити различитим методама. Сваки метод евалуације има своје предности, а од циљева студије зависи који метод изабрати. Поред задатих циљева, доступност података и других ресурса такође може утицати на избор методе.

У табели 1 формулисана су уобичајена питања везана за економски утицај ловног туризма и предложене одговарајуће методе за проналажење одговора на постављена питања.

Табела 1. Избор методе – уобичајена истраживачка питања и примери резултата

Могућа истраживачка питања	Погодне методе	Пример резултата
Какав је директан економски утицај ловног туризма у истраживаном региону?	Дескриптивна статистика Микроекономска оптимизација Нордијски модел	Утицај на приходе и запосленост у региону истраживања.
Колики је **укупан утицај** ловног туризма (укључујући мултипликовани ефекат)?	Улазно-излазни модели Модели опште економске равнотеже Нордијски модел	Утицај на националну или регионалну производњу, бруто домаћи производ (БДП), запосленост, приход итд.
Који ће бити **(будући) економски утицаји** планираних инвестиција/прописа/планова у ловном туризму?	Cost-benefit анализа Улазно-излазни модели Модели опште економске равнотеже Нордијски модел	Трошкови и користи инвестиције/прописа/плана. Утицај на националну или регионалну производњу, БДП, запосленост, приход итд.
Какви су били **(ранији) економски ефекти** проучаване промене у ловном туризму?	Дескриптивна статистика Микроекономска оптимизација Нордијски модел Cost-benefit анализа Улазно-излазни модели Модели опште економске равнотеже	У зависности од методе, нпр. утицај на приход и запосленост, трошкове и користи, утицај на националну или регионалну производњу, БДП, запосленост итд.
Колика је **вредност промене** у нпр. услугама екосистема које се не одражавају на тржишне цене?	Економски методи евалуације	Колико су људи спремни да плате за неку промену. Колико једна компонента или атрибут доприноси вредности.

КАРАКТЕРИСТИКЕ РАЗЛИЧИТИХ МЕТОДА

Дескриптивна статистика

- Званична статистика и друге постојеће базе података пружају материјале отвореног приступа који се могу користити за описивање економске ситуације и процену економских ефеката.
- Национални и регионални извештаји нуде преглед економије.
- Сателитски рачун туризма (TSA) допуњава податке везане за туризам.
- Статистички материјали који се концентришу на ловни туризам могу бити доступни на нпр. националне власти у истраживачке сврхе.
- Статистички материјали који се односе на ловни туризам могу бити доступни код одређених националних институција у истраживачке сврхе.
- Опис, прилагођавање и статистичка анализа постојећих или новоприкупљених података обично чине полазну тачку за процену утицаја.

Директни економски утицај – Нордијски модел

- Нордијски модел представља процену утицаја туризма на регионалну економију и рачуна економски утицај туризма на основу туристичке потрошње.

- Нордијски модел мери економске ефекте и ефекте на запошљавање у специфичним просторним окружењима и постоје два приступа:
  - **Модел прихода** анализира економске ефекте туризма на локалне компаније прикупљањем података од туристичких компанија у оквиру локалне туристичке индустрије.
  - **Модел расхода** испитује суме новца које туристи потроше у одабраном региону и укупне трошкове различитих туристичких услуга и производа.
- Базе података углавном су састављене из интервјуа и анкета. Прикупљање података може бити скупо и дуготрајно, подаци могу бити недовољно квалитетни (у зависности од спремности туристичких предузећа за сарадњу, добијања непоузданих података и непоуздане процене потрошње од стране испитаника)
- Резултати се могу користити као инпути у другим студијама, нпр. када се користе модели опште економске равнотеже, Cost-benefit анализа или улазно-излазни модели.

Микроекономска оптимизација

- Трошкови и приходи мењаће се заједно са обимом производње.
- Циљ оптимизације производње је проналажење нивоа производње који резултира максималним профитом.
- Емпиријски подаци могу се користити за откривање функције производње-профита.
- Максимум функције профита може се наћи математичким методама.

Економско моделовање – Улазно-излазни модел

- Улазно-излазни модел омогућава идентификацију међузависности између индустрија у економском систему јер инпути једне индустрије представљају резултате друге индустрије.
- Ови односи доводе до равнотеже између понуде и тражње у целокупној привреди.
- Улазно-излазни модел обухвата директне и индиректне економске утицаје ловног туризма.
- Захваљујући симетричним улазно-излазним табелама (SIOT), могуће је идентификовати производне мултипликаторе и на тај начин проценити ефекат мултипликатора унутар индустрије.

Економско моделовање – Модели опште економске равнотеже (CGE models)

- Модели опште економске равнотеже користе се за процену ширег економског утицаја.
- Модели описују економије у целини са системима једначина који су изведени из успостављених економских теорија.
- Базе података углавном су састављене од званичне статистике.

- Модели опште економске равнотеже обухватају резултате и директних и индиректних ефеката.
- Фокус је утицај на макро нивоу, а уобичајени резултати укључују промене у БДП-у, запослености, приходима и трговини.

Cost-benefit анализа (CBA)

- Cost-benefit анализа процењује користи и трошкове које би проучавани пројекти, прописи или друге појаве изазвале субјектима за које је дефинисано да имају статус у анализи.
- Нето садашња вредност (НСВ) означава разлику између трошкова и користи које су дисконтоване на садашње вредности.
- Резултати Cost-benefit анализе могу се користити за одабир усвајања пројекта или прописа. Правило је да се изабере алтернатива која има (највећу) позитивну НСВ.

Друге методе

- Економски ефекти ловног туризма могу се анализирати и другим методама.
- Мултипликативни модели испитују обим улоге туризма у економском развоју откривањем индиректног ефекта уз прорачун за колико ће се одређени фактор повећати (нпр. запосленост у туризму), ако се инпут (обично трошкови туриста) промени за одређену јединицу (нпр. 1 EUR).
- Технике економске процене омогућавају препознавање вредности које се не одражавају на тржишне вредности, као што је економска вредност рекреације.

ФИНАЛНА РАЗМАТРАЊА

Методе економске евалуације могу бити значајне за процену индикативних економских утицаја промена у економским активностима или условима. Међутим, претпоставке и квалитет коришћених података утичу на поузданост резултата. Све методе имају предности и недостатке као што је приказано у Табели 2.

Табела 2. Предности и недостаци метода процене економских ефеката.

Метод	Предности	Недостаци
Дескриптивна статистика	+ коришћење постојећих података + једноставност + широк избор варијабли	- разматра само директне утицаје - могуће је проценити само прошле утицаје
Микроекономска оптимизација	+ погодан за прављење будућих предвиђања поред процене садашњих/прошлих утицаја + могуће добити аналитичке резултате са ограниченим емпиријским подацима	- разматра само директне утицаје - укључује неколико претпоставки/поједностављења
Нордијски модел	+ флексибилан + лако примењив	- углавном разматра само директне утицаје - изазови у вези са подацима (нпр. трошкови и квалитет)
Улазно-излазни модели	+ могућност процене прошлих и будућих утицаја + узима у обзир и мултипликативне ефекте + погодни и за динамичне студије + неколико променљивих за резултате	- не узимају у обзир ограничења ресурса - захтева много података - укључује неколико претпоставки/поједностављења
Модели опште економске равнотеже	+ узима у обзир и мултипликативне ефекте + могућност процене прошлих и будућих утицаја + широк избор варијабли + погодни и за динамичне студије	- захтева много података - захтева опсежно знање (укључујући програмирање) - захтева софтверске лиценце - укључује неколико претпоставки/поједностављења
Cost-benefit анализа	+ могућност процене прошлих и будућих утицаја + могуће рангирање опција са јасним правилима	- неке користи и трошкове је тешко проценити - може искључити неке трошкове или користи
Мултипликативни модели	+ разматра индиректне ефекте	- не узимају у обзир ограничења ресурса - укључује неколико претпоставки/поједностављења
Евалуација	+ омогућава препознавање новчаних вредности које се не одражавају на тржишне вредности	- не процењује шири економски утицај појаве

Процене утицаја доносиоцима одлука могу донети значајан увид у локалну привреду: како су различити актери и активности повезани и које би шири ефекти појединачних промена могли бити. Ово разумевање пружа добру основу за доношење промишљених одлука. Иако је препознавање економског утицаја важно, треба сагледати и друге аспекте. Друштвени, културни и еколошки утицаји изазвани активностима у ловном туризму су суштинска гледишта у процесима доношења одлука.

Процене економског утицаја се фокусирају на ширу слику. У неким случајевима, шири утицај може бити прилично мали, али утицај на појединачне економске актере може бити значајан. Слично томе, општи утицај може бити позитиван, али је могуће да се поједини актери суоче са губицима због разматране промене. Из наведених

разлога неопходно је анализирати да ли се проучавана економска промена може оценити оправдана. Важно је напоменути да иако индикатори као што је БДП могу открити важне ефекте, они ипак нису идеални индикатори. Ови индикатори одбацују неке важне аспекте, који ограничавају њихову способност да објасне, примера ради, ефекте на људско благостање. На крају, процене економског утицаја могу да помогну доносиоцима одлука, али је неопходно запамтити ограничења сваке методе и студије.

ДОДАТНИ МАТЕРИЈАЛИ

Желели бисмо да предложимо неке додатне материјале за читање уколико сте заинтересовани да сазнате више о економској евалуацији. Прво, препоручујемо да погледате наш водич који сумира кључне аспекте уобичајених метода евалуације, фокусирајући се на контекст ловног туризма. Такође, предлажемо да се упознате са нашим студијама случаја које илуструју примену неких метода у амбијенту ловног туризма. Ако желите детаљнији увид у неке методе, следеће књиге могу бити корисне.

Микроекономија

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ДИРЕКТАН ЕКОНОМСКИ УТИЦАЈ ТУРИСТИЧКОГ ЛОВА НА СРНДАЋА У ВОЈВОДИНИ (СРБИЈА)

Увод. Лов је популаран облик рекреације у природи, значајан облик пословања и важан део културног наслеђа. Ловни туризам може имати значајан позитиван утицај на локалну заједницу и донети јој значајну економску корист. Средства прикупљена кроз ловни туризам враћају се овим регионима кроз директна улагања и одрживо управљање дивљим животињама. Србија има дугу традицију у организованом ловству који са својим природним потенцијалима и повољним климатским и орографским факторима представља квалитетну основу за одрживи развој ловства. Регион Војводине је равничарска област која се налази у северном делу земље са 154 ловишта. Готово сви национални рекорди срндаћа одстрељени су у ловиштима којима газдују ловачка друштва у Војводини.

Истраживачко питање. Циљ је био да се процени директан утицај туристичког лова на срндаћа са фокусом на регион Војводине. Војводина је изабрана јер је најразвијенија дестинација ловног туризма у Србији са најбоље уређеним ловиштима. То је претежно рурално подручје, са развијеном пољопривредом, дугом традицијом лова, као и ловног туризма. Већина страних ловаца који посећују Србију долази у лов у Војводину. Основни циљ био је да се примени нордијски модел како би се проценио економски утицај ловног туризма на локалну заједницу у 2019. години.

Материјали и методе. За процену директног економског утицаја туристичког лова на срндаћа у региону Војводине примењен је нордијски модел. Анализа се заснива на информацијама прикупљеним из анкетног истраживања, интервјуа са управницима ловишта и ловнотуристичким добављачима. Анкетно истраживање је спроведено међу туристима ловцима. За анализу економског утицаја туристичког лова на срндаћа одабрано је једно од реномираних ловишта у Војводини. Из овог ловишта прикупљани су подаци о боравцима туриста, вредности трофеја и тежини одстрељених трофеја. Прикупљани су и подаци о броју организованих туристичких ловова, ценама сваког организованог лова, другим накнадама које ловци плаћају организаторима, као и додатним наплаћеним услугама током ловнотуристичких активности. Подаци о просечној додатној потрошњи ловаца (потрошња ловаца поред накнада за ловнотуристички пакет) добијени су из интервјуа са 2 управника, 3 пратиоца, 2 ловочувара и 2 добављача. Интервју је осмишљен са 16 питања подељених у две тематске целине (Лов и Потрошња).

Резултати. Страни туристи ловци који су дошли у лов на срндаћа били су из Швајцарске, Аустрије, Немачке и Француске, а забележен је значајан број домаћих ловаца туриста, посебно 2020. године, која је била година почетка COVID пандемије. Дужина боравка ловаца туриста кретала се од 2 до 6 дана. Одабрано ловиште остварило је приход од 35.184 евра од трофеја срндаћа у сезони лова на срндаћа 2019. године. Локална заједница је у 2019. години у сезони лова на срндаћа остварила приход од 38.104 евра, који је остварило 11 ловаца туриста (8 домаћих и 3 инострана). Према интервјуима и статистичким подацима, један ловни туриста је у просеку потрошио 2.126,3 евра по ловном дану у региону Војводине. У Војводини постоји 21 ловиште које организује туристички лов на срндаћа. Пошто подаци о тачном броју ловаца на срндаће нису били доступни, претпоставка о том броју произишла је из интервјуа са ловнотуристичким стручњацима Војводине (просечно 7 ловаца по једном ловишту и 2 дана просечног боравка). Тако је у 2019. години било (21×7) 147 туриста ловаца на срндаће, а директни економски приход од ловног туризма на срндаћа износио је (2126,3 евра × 147 туриста × 2 дана) 625.132,2 евра.

Закључци. Регионални економски утицај ловног туризма у Војводини је значајан с обзиром на мали број туриста од којих се остварују прилично велики приходи. Ресурси прикупљени кроз ловни туризам касније се користе у овим регионима кроз директна улагања и као средство одрживог управљања дивљим животињама.

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