

# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management



## **Diploma Thesis Title:**

“Ways to improve the efficiency of state regulation of entrepreneurship in the tourism industry”

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## АННОТАЦИЯ

Основная цель нашего исследования – разработка комплексного подхода к изучению математических методов прогнозирования основных макроэкономических показателей индустрии туризма и предложение рекомендаций по совершенствованию государственной политики в сфере туризма.

В нашей работе мы применили такие методы эконометрического моделирования и прогнозирования, как: моделирование с использованием уравнений регрессии основных макроэкономических показателей индустрии туризма и прогнозирование с использованием уравнений регрессии основных макроэкономических показателей индустрии туризма.

Указанная цель достигается следующими задачами: определить понятие, виды и форму туристского предпринимательства; рассмотреть основные направления поддержки туристского предпринимательства; изучить особенности туристического рынка и особенности его регулирования; изучить современное состояние индустрии туризма; провести анализ рынка туристической индустрии; проанализировать макроэкономические показатели в сфере туризма (вклад туризма в ВВП); создать модель основных макроэкономических показателей вклада туризма в ВВП России с использованием уравнений регрессии; прогнозировать основные макроэкономические показатели вклада прямого туризма в ВВП Российской Федерации с использованием уравнений регрессии и предложить меры по совершенствованию государственной политики в сфере туризма.

Настоящая магистерская диссертация представляет собой исследование по усилению государственного регулирования предпринимательства в сфере туризма как доминирующей идеи устойчивого регионального развития.

Эта исследовательская работа состоит из введения, двенадцати параграфов, объединенных в три главы, заключения, ссылок и приложения.

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## INTRODUCTION

*Relevance of the research topic.* Tourism today includes a wide array of economic and social activities on an international scale and covers all social classes. It is directly related with the development of every modern society and aims at meeting human needs in a developed culture so as to create the conditions for advancing understanding and brotherhood among the different people in order to achieve a better future for mankind.

The contribution of the tourist sector is beneficial for a country's economy due to its influence on sectors other than the foreign exchange sector, like:

- the employment sector and especially in the tourist periphery, with the direct consequence of restraining the tendency to immigrate and keeping the population in its place;

- the business sector, through the expansion of the industrial and agricultural production so as to meet the increasing tourist wave, as well as the mobilization of the international and domestic trade and the activities of various service-related industries like transportation, telecommunications, banking, travel agencies, etc;

- the incomes sector; the tourist income, in addition to contributing to the country's aggregate income, seems to be distributed throughout a wide population stratum; this constitutes a factor of primary importance towards strengthening the development of the periphery;

- the cultural sector; In addition to the improvement of the living standards of populations in areas with increased tourism, there is also significant improvement in their cultural standards;

- the fiscal sector; It must finally be emphasized that the tourist activity exerts beneficial results on public economics and especially at the local level.

The growth potential of international tourist movements depends on a number of variables that include economic, demographic, technological, psychological, socio-political, etc. It is impossible to quantify the interrelationships among all these

variables so as to be able to carry out a complete analysis of trends in international tourism.

The main variable that definitely influences tourist movements positively is growth in Gross National Product (GNP). GNP growth increases disposable income and hence the willingness and ability to consume various goods and services, including an increase in tourist demand, whether such a demand refers to number of arrivals and number of nights spent or to sums of tourist foreign exchange.

Using as a yardstick tourism's appeal as a qualitative social practice, and if current trends continue and come to be realized, then one should expect a bigger increase in demand, both in the near and in the more-distant future. In the analysis that follows an effort is made to identify those variables that influence tourist demand.

*The extent of research.* Theoretical and practical aspects of entrepreneurship state regulation in tourism industry at different times were discussed in the works of Russian and foreign researchers and scientists such as Schumpeter J., Andreev V.A., Dracheva E.L., Zabaev J.V., Ismaev D.K., Porter M.E., Studenmund A.H., and others.

*Goal.* The main goal of our research is the developing of complex approach for studying mathematical methods in forecasting basic macroeconomic indicators of tourism industry and suggesting the recommendations for improving government policy in tourism sector.

*Methods.* Contemporary science approaches for studying mathematical methods in forecasting basic macroeconomic indicators of tourism industry offers different tools to study different development strategies. Among others there must be highlighted certain methods of qualitative and quantitative analysis such as economic and statistical analysis, statistical comparison, trend analysis of macroeconomic indicators, time-series and regression analysis as well as documents analysis which altogether constitute a methodological framework of the current research.

In our work we applied such methods of econometric modelling and forecasting as: modelling using regression equations of basic macro-economic indicators of tourism industry and forecasting using regression equations of basic macro-economic indicators of tourism industry.

*Tasks.* The mentioned goal is achieved by the next tasks:

- to define the concept, types and form of entrepreneurship;
- to consider main directions of entrepreneurship support;
- to study characteristics of the tourism market and peculiarities of its regulation;
- to find the essence of the econometric modeling of macroeconomic indicators in tourism industry;
- to study current state of the tourism industry (in whole world and in each country separately);
- to make an analysis of the market of tourism industry;
- to analyze the macroeconomic indicators in the tourism industry (the tourism contribution to GDP);
- to reveal the problems of government policy for tourism sector;
- to create a Panel Data Set of key tourism macro-economic indicators and choose it for multiple linear regression model;
- to create a model of basic macro-economic indicators of tourism contribution to GDP of Russia using regression equations;
- to forecast basic macro-economic indicators of the direct tourism contribution to GDP of Russian Federation using regression equations;
- to suggest and recommend measures for improving the government policy in tourism sector.

*Object.* We consider basic macroeconomic indicators of tourism industry as an object of the research.

*Subject.* We consider mathematical methods of forecasting in tourism studies as a subject of the research.

*Empirical base.* Consists of public documents, annual reports and statistical data which together with experts' survey on the modern economic situation representing a «live» material and make up quite big massive of data in the current work.

The primary data for the practical part of the research is taken from the Free data, statistics, analysis, visualization & sharing – knoema.com, Russian federal state statistics service «Rosstat» and the official website of ROSTURISM.

*Theoretical and methodological base.* Theoretical and methodological base is made up of scholar and scientific works of Russian and foreign scientists on the problems of forecasting basic macroeconomic indicators of tourism industry.

*Added value* of dissertation work consists in the revealing of how studying mathematical methods in forecasting basic macroeconomic indicators of tourism industry influences on improving government policy in tourism sector in the frames of modern economic system.

The current master's dissertation is a study of increase state regulation of entrepreneurship in tourism industry as a dominating idea for sustainable regional development.

*Structure of the Master Thesis.* This research work consists of introduction, twelve paragraphs combined into three chapters, conclusion, references and appendix. The main theses of the work are illustrated with tables, figures and pictures.

## **1 State support of tourism entrepreneurship**

### **1.1 The concept, types and form of tourism entrepreneurship**

In modern times, both in industrialized and emerging countries, the main problems are individual rationality and creativity of entrepreneurial business. Entrepreneurial philosophy ultimately reduces unemployment, especially among educated youth. The study of tourism industry and the processes of tourism industry are the main phase for empowerment of educated young people in the field of tourism business. The tourism industry is seen as the agent of change in economic and social changes. Entrepreneurial activity in the sphere of tourism eliminates social problems but accelerates the fiscal growth and development of a country, which leads to growth of country's GDP.

Employment has constantly been a dominant subject in development. Employment is vital for successful and sustainable growth. The tourism business is one of the largest, fastest growing sectors. The tourism industry is considered an indispensable role in creating jobs.

Another vital aspect of country's wealth and dynamism depends upon the competitiveness of its firms and this, in turn, relies fundamentally on the capabilities of its entrepreneurs and managers.

A definition of entrepreneurship is proposed as follows: Entrepreneurship is the process of doing something new and something different for the purpose of creating wealth for the individual and adding value to society [4].

Entrepreneurs introduced the concept of Tourism Businesses. Entrepreneurship plays a vital part in transforming the supply of leisure and recreational opportunities. Entrepreneurship is considered as a critical factor in tourism development, both regionally and globally.

Koh stated that 'tourism entrepreneur' is a person or a group of persons producing and managing tourism products [23]. Tourism entrepreneurship has been recognized as the basic way to provide strategic support for maintaining business



development especially in rural areas. Koh & Hatten identified the prominence of entrepreneurs in tourism development and claimed that the birth of touristic business is not an act of nature but an act of the tourism entrepreneur. Koh & Hatten claimed that it is only when tourism entrepreneurs exist a society's environment, landforms, flora and fauna, historic artifacts, and cultural heritage enclaves become tourism resources which can be renovated and transformed into tourist attractions and destination [23]. Tourism produces a great deal of profit, and it is the fastest growing sector in the world.

The Babson College definition of entrepreneurship is “a way of thinking and acting that is opportunity obsessed, holistic in approach, and leadership balanced” [1].

Studying offers of business capabilities requires the differentiation between the functions of entrepreneur, manager and capitalist, although in many cases, the same person may perform all three (Table 1):

Table 1 – Entrepreneurs, managers and capitalists

<b>Indicator:</b>	<b>ENTREPRENEUR</b>	<b>CAPITALIST</b>	<b>MANAGER</b>
<b>Characterized by</b>	<ul style="list-style-type: none"> <li>- discovers and exploits opportunities;</li> <li>- a creator who initiates and motivates the process of change.</li> </ul>	<ul style="list-style-type: none"> <li>- capital owner: Shareholders;</li> <li>- controlling shareholders;</li> <li>- passive shareholder.</li> </ul>	<ul style="list-style-type: none"> <li>- administrates and manages resources;</li> <li>- an administrator.</li> </ul>
<b>Behaviour</b>	<ul style="list-style-type: none"> <li>- accepts risks;</li> <li>- uses intuition, is alert, explores new businesses;</li> <li>- leadership, initiates new ways of acting;</li> <li>- identifies business opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>- aversion to risking;</li> <li>- assesses alternatives;</li> <li>- choice of venture assets.</li> </ul>	<ul style="list-style-type: none"> <li>- aversion to risking;</li> <li>- “rational” decision-maker;</li> <li>- creates and maintains competitive advantage.</li> </ul>

The individual entrepreneur detects or creates business opportunities that he or she then exploits through small and medium-sized firms, normally participating in funding the capital for that firm, carries out the role of arbitrator or simply “sells the idea” of the business project. The “corporate entrepreneur” or the chief executive of large firms must also be considered. This figure is no longer limited to efficiently managing the firm’s assets and coordinating and controlling its activities; in the current climate, he or she must anticipate, articulate and manage change. In other words, they must reinvent the firm on a daily basis, creating new enterprise and develop company networks. When discussing the figure of the corporate businessman, one must also consider the key shareholders that take an active part in the firm, along with managers that share in making up the firm’s basic competences.

However, the manager’s function is first and foremost to supervise the process of combining resources, and efficiently manage the firm’s business portfolio. They have a key function when, as is normally the case, firms do not operate efficiently, and instead are a long way short of their production boundaries [2]. A second but fundamental task of the manager is to build up a reputation and atmosphere of trust that transforms a conflictive system (individuals with conflicting objectives) into a system of cooperation. Managers should create a climate of trust so that employees will not tend towards opportunist behaviour, even when it suits their short-term interests, as well as achieving a greater degree of efficiency by reducing supervision and agency costs.

Finally, the capitalist is the provider of the firm’s funds, either in the form of a passive shareholder (in the case of small shareholders or institutional investors) or as a majority shareholder or active shareholder who, in many small and medium-sized firms, assumes both the entrepreneurial and managerial functions.

After we have determined the definition of entrepreneurship, let's consider how the concept of entrepreneurship was developed. The term entrepreneur, in French, if literally translated, means “go-between” and has been used since the 12<sup>th</sup> Century. An earliest example of an entrepreneur is Marco Polo, who attempted to establish trade routes to Far East.

During seventeenth century, the term entrepreneur was used for a person who entered into a contractual arrangement with the government to perform a service or supply stipulated products since the contract price was fixed, any resulting profits or losses belonged to the entrepreneurs, thereby assuming the risk arising out of his expedition. Richard Cantillon, a noted French economist during 17<sup>th</sup> century, developed one of the early theories of entrepreneur and is credited as the founder of the term. He viewed the entrepreneur as a risk taker, observing the discrepancies between supply and demand and options for buying cheaply and selling at a higher price. He defined an entrepreneur as a merchant or farmer “who buys at certain price and sells at an uncertain price and bears the operating risk” [11].

By the eighteenth-century feudalism was eliminated; legal and institutional conditions have changed with the emergence of the joint stock company. During this period, the person with capital was differentiated from the one who needed capital. In other words, entrepreneur was distinguished from the capital provider. One of the reasons for this differentiation was the industrialization occurring throughout the world. Many of the inventions developed during this time were reactions to the changing world.

It was only during nineteenth century; entrepreneurs were viewed from an economic perspective. The entrepreneur organizes and operates enterprise for personal gain. He pays current prices for the material consumed in the business, for the use of land, for personal services he employs and for the capital he requires. He contributes his own initiative, skills and ingenuity in planning, organizing, and administering the enterprises. He also assumes the chance of loss and gain consequent to unforeseen and uncontrollable circumstances. The net residue of the annual receipts of the enterprises after all costs have been paid, he retains for himself [11].

In the middle of twentieth Century, the first economist, to focus on the role of entrepreneurship in economic development through innovations was Joseph A. Schumpeter. In his words, “The function of the entrepreneur is to reform or revolutionize the pattern of production by exploiting an invention or, more

generally, an untried technological method of producing a new commodity or producing an old one in a new way, opening a new source of supply of materials or new outlet for products, by organizing a new industry [34].

The tourism business has been recognized as one of the main areas of economic growth and economic revolution in developing countries. So far, services related to tourism and travel are tightly controlled by European countries and the United States of America (USA). The tourism industry generates employment opportunities for a large number of people, both skilled and unskilled workers. Tourism supports the nationwide unification by generating foreign exchange, encourages cultural activities and customary and traditional handicrafts segment [32]. Tourism business has a significant impact on the survival of various service sectors such as resort, rest house, services, hotels, handcraft business development centers and travel agents.

Arunmozhi & Panneerselvam stated that tourism is the short-term association of people outside the domicile where they ordinarily live and work to a destination that expressly meets their requirements [7]. The kinds of tourism are vibrant in time. Tureac & Anca justified that in general tourism industry is distinguished into six types established on diverse standards as you can see below (figure 1):



Figure 1 – Six types of tourism

Different types of tourism business have been distinguished based on the following criteria [40]:

1. *The conditions of the primary region and the destination:*
  - a) domestic tourism business;
  - b) international tourism business.
2. *The standard quantity of members:*
  - a) individual tourism business;
  - b) group tourism business.
3. *Organizational standard:*
  - a) organized tourism business;
  - b) unorganized tourism business;
  - c) Semi-organized tourism business.
4. *Seasonal Criterion:*
  - a) continuous tourism business;
  - b) discontinuous tourism business.
5. *Temporal Standard:*
  - a) tourism for very extensive period of time business;
  - b) tourism of long period business;
  - c) tourism of compact period business.
6. *Transportation vehicles criteria:*
  - a) train Tourism business;
  - b) auto Tourism business;
  - c) maritime tourism business;
  - d) in-flight tourism business;
  - e) other forms of tourism business such as cycling, walking, etc.
7. *Societal criterion:*
  - a) private tourism business;
  - b) social tourism business.
8. *Age and occupation standard:*
  - a) youth Tourism business;

- b) specific to grown-ups' tourism business;
- c) specific for adult group tourism business.

9. *Destination criterion:*

- a) mountain tourism business;
- b) season tourism business.

The features of tourism, which encompassed transport and other infrastructure, marketing and networks to dissemination structures, need proper tourism development strategies that can implement its full range. The tourism industry needs to be monitored and control the value of the tourist experience, the value of the operational experience, and the value of the host situation [8]. Individuals who are involved in tourism industry need to apprehend cultural variances between tourists. The host agency and country must be capable of creating tourist's attraction and offer tourist treatment that meets the standard expected by the customers.

## **1.2 Main directions of entrepreneurship support in tourism industry**

Research continues to link entrepreneurial activity and economic prosperity. The recently published Global Entrepreneurial Monitor (GEM) states, "Variations in rates of entrepreneurship may account for as much as one-third of the variation in economic growth" [17]. The GEM study then examines the culture and economic policies of 10 nations to determine which factors either support or impede the emergence and growth of an entrepreneurial economy. One can assume that there are also variations at the sub-national level affected by differences in state policies and approaches to economic development.

Entrepreneurs contribute to economic and social well-being by:

- developing and commercializing innovative products and services that improve our quality of life and improve our position in the global economy;
- generating new industries and firms to replace those that have run their course;

- creating employment opportunities;
- creating wealth that is re-invested in new economic enterprises and, through philanthropy, in communities.

Let's see how it works on the example of US. State government can play a significant role in supporting the emergence and success of entrepreneurial enterprises. Since states first became active participants in the economic development process in the 1950s, the majority of attention has been on incentives and public programs that provide direct assistance to individual firms. However, the impact of these programs on a state's economy is relatively small compared to tax and regulatory policies that affect everyone who does business in the state. Similarly, state investments in education and public infrastructure determine the configuration and the quality of the "playing field" on which all economic activity occurs within individual jurisdictions.

This study covers state entrepreneurial policies in the following categories. Each is important to encouraging entrepreneurship as a career option and supporting entrepreneurial activity [41].

- general perspective of entrepreneurship;
- tax and regulatory climate;
- access to capital;
- entrepreneurship education;
- intellectual capital.

The states are not ranked or graded in terms of their overall performance or in a given category. In fact, it is impossible to say that any state can claim the title of having the "most entrepreneurial-friendly environment." The fact that best practices under each of the policy categories are distributed among all the responding states suggests that states have much to learn from each other.

If one were to grade the states collectively, the data suggests that there are positive trends emerging within several states as evidenced by the best practices. However, there is still considerable room for improvement. State policymakers should not be discouraged by this assessment. The compelling argument to invest

state resources in support of entrepreneurs is only now being made. Research such as the GEM analysis, which more clearly links entrepreneurship with strong economies, is only now achieving visibility among policymakers.

Or perhaps advocates of entrepreneurship have not worked closely enough with public sector officials and policymakers. Instead of being discouraged by some of the findings, the Kauffman Center and the Commission view this study as an opportunity to begin working with state officials to better understand how entrepreneurs contribute to state economic and social goals. Only then will state officials realize it is in their own interest to explore policy options that effectively promote and support an entrepreneurial economy [5].

Starting or growing a business is very challenging, so it's natural for entrepreneurs to tap into all the help they can find. But many businesses seeking help become confused by the vast number of government support initiatives and eventually give up looking for help.

The tourism industry operates within a developed legal and regulatory framework which the players in this industry need to adhere to in the course of offering their services.

The Authority strives to deepen and broaden tourism by developing and implementing a regulatory framework that ensures fairness, orderliness and high-quality service in the industry. The regulatory framework of the Authority comprises the following [22]:

The Tourism Act No. 28 of 2011 was enacted to provide for the development, management, marketing and regulation of sustainable tourism and tourism related and services and for connected services.

Pursuant to Section 122 of the Tourism Act 2011, Tourism Regulatory Authority Regulations 2014 were formulated and gazette to prescribe matters related to regulation of the tourism sector and operations of the Authority.

A key function of TRA as per the Tourism Act is to: “register, license and grade all sustainable tourism and tourist-related activities and services including cottages and private residences engaged in guest house services”.



In so doing, the need was found to create, in the Regulations, the Standards and Classification Committee. This would (amongst other functions) carry out the following:

- undertake overall supervision and guidance of National Tourism Standardization and Classification exercise of all tourism activities and services;
- oversee the development of standards for all tourism enterprises and activities;
- provide guidance on regular training and refresher courses for the trained professional assessors to improve their competency in grading/ quality assurance system.

Roles and responsibilities:

- exercise objective judgment on overseeing classification and standardization;
- monitor and analyze the implementation of standardization and classification;
- ensure that procedures and practice standards are adhered to in conducting standardization and classification and that it is within legal provisions;
- manage risks and conducts that may injure the reputation of standardization and classification, Government and TRA.

Tourism, as defined in the year 1981 by the International Scientific Association of Tourism Experts in terms of “particular activities chosen and undertaken outside the home”, has many manifestation forms. These were classified in the year 1994, in the “Recommendations Referring to Tourism Statistics” by the United Nations, according to several criteria that influence the tourism phenomenon aspects (Table 2) [9]:

Table 2 – Classification of tourism forms in the international statistics

Criterion	Tourism form
Distance	It imposes three variants of tourism practice: short distance, big distance, very big distance
The travel or stay duration	It has three forms of tourism: short duration, medium duration, long duration
Origin of tourists	It individualizes two forms of tourism: internal and international
Age of tourists	It differentiates the tourism practices by pupils and students, by the mature people and by elderly people
Number of the practicing people	It individualizes two forms of tourism: internal and international
The organization level	It determines tourism activities that can be continuous, seasonal, or occasional
Transportation modes	Island, roads, railways, air and naval
Motivation of trip or journey	It lies at the basis of specialized, niche tourism formation, each form being defined by its own adjective – relaxation and rest tourism, recreation, creative, business, winter, summer, cultural, religious, sports, educational, medical, ecological, rural tourism, etc.

Tourism is the most powerful economic branch worldwide, with complex functions and multisectoral implications. With about one hundred thousand employees worldwide, tourism stands out as the most important employer.

In this context, the rural tourism has emerged and developed, embracing all the tourism activities in the rural areas, with the purpose to put into value the natural and human potential of villages. This is considered as “the meeting place” of the rural culture with the urban culture, which is much more sensitive to the nature. Rural tourism is also an occupational alternative for the rural labour force, a modality for the diversification of the economic activities, generating alternative incomes and it represents a factor of rural population’s stabilization.

In the fragile and pristine areas, which are most often protected areas, the eco-tourism or ecological tourism can be also developed, which is a form of sustainable tourism, whose goal is to supply high quality tourism services in the conditions of protecting the natural areas and stimulating local economy development.

Due to the unique landscapes, vast semi-natural areas, innate hospitality of inhabitants, conservation traditions, gastronomy, as well as to the diversity of tourism resources, the rural space provides a rich and diverse potential for the development of what “puts together an aggregate of goods and services supplied for consumption to people who travel outside their usual environment for a period smaller than one year with a main reason that is different from the practice of a remunerated activity inside the visited place” (GO no.58/1998) [16].

The support to tourism infrastructure and services in the rural area is necessary out of two reasons: firstly, for the creation and promotion of competitive tourism, and secondly, for setting up local networks for the promotion and supply of these services with the active involvement of the rural population, mainly of women and young people.

There are very few methods to measure the success and profitability of investments in tourism, due to the semi-informal nature of activities, the poorly organized promotion and marketing, mainly at county and local level, which makes it difficult for the entrepreneurs/operators to penetrate on the market and develop their businesses correspondingly.

The development of an economic activity needs finance, which can be provided from:

- own resources accumulated in time or borrowed;
- support provided by the business partners, which can finance the entrepreneur’s business by the supply of equipment, raw materials and materials in advance, on the condition of the subsequent payment of their cost, also named commercial credit (this type of credit is practiced as a rule between enterprises that have long and stable commercial relations);
- bank credit or credit from other financial institutions;
- national, European and international programs oriented towards the support of small and medium-sized enterprises.

For the rural area, the programs provide for non-refundable funds for the initiation/development of activities of production/services or granting low-interest

credits. Among these programs, NPRD and the national schemes for granting the de minimis aid are best known.

The utilization of credits implies “costs”, in the sense that these must be paid periodically, with a certain interest, and in order to get them the entrepreneur must come with solvent collaterals, which will be evaluated by the bank granting the credit. As regards the access to the non-refundable funds through NPRD for the development or modernization of the activities of production and/or services in the agricultural or non-agricultural sector, there are measures for investments or for granting an aid under the form of a lump sum on the basis of a business plan.

The design of the Business Plan (BP) represents the entrepreneur’s “business compass”. BP is a written document, elaborated by the entrepreneur or with his direct involvement, which helps him in business development, establishment of perspective actions, allocation of necessary financial and material resources, tracing the key-points and the problems and identification of opportunities [14].

The development of micro-enterprises, as well as of the small and medium-sized enterprises plays an essential role in the rural economy, where it represents a significant source for obtaining incomes and for the promotion of entrepreneurial skill, innovation and job creation.

### **1.3. Characteristics of the tourism market and peculiarities of its regulation**

Marketing of tourist product has certain characteristics. Although general principles of marketing could be applicable to marketing the product, there are certain differences in approach. These differences are because of the peculiar character of the tourist products. Some special characteristics of tourist products are as follows [18]:

### *1. Tourism is an intangible product*

Tourism is related to service, facility, pleasure, leisure, etc. which is not possible to visualize.

### *2. Ownership of tourist product is non-transferable*

In tourism, buying and selling of a product does not mean buying things like other properties. It is buying or selling the service. In the process of buying and selling of the tourism product, no transfer of ownership of goods is involved as compared to tangible product.

### *3. Production and consumption are closely interrelated*

Production of the tourism product is not to create a new item. It is related with idea. Tourism product is the amalgamation of attraction, facilities and accessibility. The travel agents who sell the product neither produce them nor own them. The travel agent cannot store them. Production can only take place and can only be completed if the customer is actually present. Most of the tourist services cannot be consumed in a time difference. Once consumption starts it cannot be stopped, interrupted or modified. The customer cannot inspect, compare or try before deciding to buy the tourism product.

### *4. Tourism is an assembled product*

The tourist product cannot be provided by a single enterprise. Each of the components of a tourism product is highly specialized and all these combined together makes the final product. The tourist product is not an airline or rail seat or a visit to historical sites but rather a combination of many components which together make a complete product. In tourism, each of the components of the tourist product is sold as an individual product. Airline ticket, hotels, resorts have their own sales outlets. Because of these peculiar characteristics coordinated effort is required in tourism marketing.

### *5. Tourism product does not move*

The tourism product cannot be transported. It does not move to the customer, but customer needs to move to the product. As attraction, hotels do not move.

Transport moves but it moves to its destination only. The customer must get it to enjoy it.

*6. The demand of tourism product is very unstable*

The demand of tourism product is influenced by different factors such as season, economy, politics, religion and other special events etc. The seasonal change greatly affects the demand. The tourism plant is used for a limited time of the year. Many tourists' areas have a short season. The seasonal business creates unemployment, develop idle investment on staff, transport, office rent and increase the cost of production.

*7. Wide coverage*

Marketing of general product may be limited, or producers can limit their sales campaign and marketing to the local area but in tourism, it must be done outside or in different locations where tourism product is produced, because tourists are the outsiders.

*8. A luxurious concept*

Tourism product being leisure, pleasure and comfort is the most luxurious concept, so it must be marketed. In the modern world of mass tourism, it has become more important to be marketed than before [18].

Complex functioning of the tourism industry organizations lies in the fact that the assessment of the quality of tourist services by the consumer is quite subjective and depends on various factors: general economic, cultural and socio-psychological, socio-demographic, personal and behavioral.

Significant impact on demand in the field of tourism services provided by such changes in the social psychology of consumption as awareness, a high level of education, the high demands on comfort and quality of services, individualism, greening of consumer thinking, mobility, physical and mental activity during vocation, the desire to get a lot of feelings. You can see it below (Figure 2) [24].

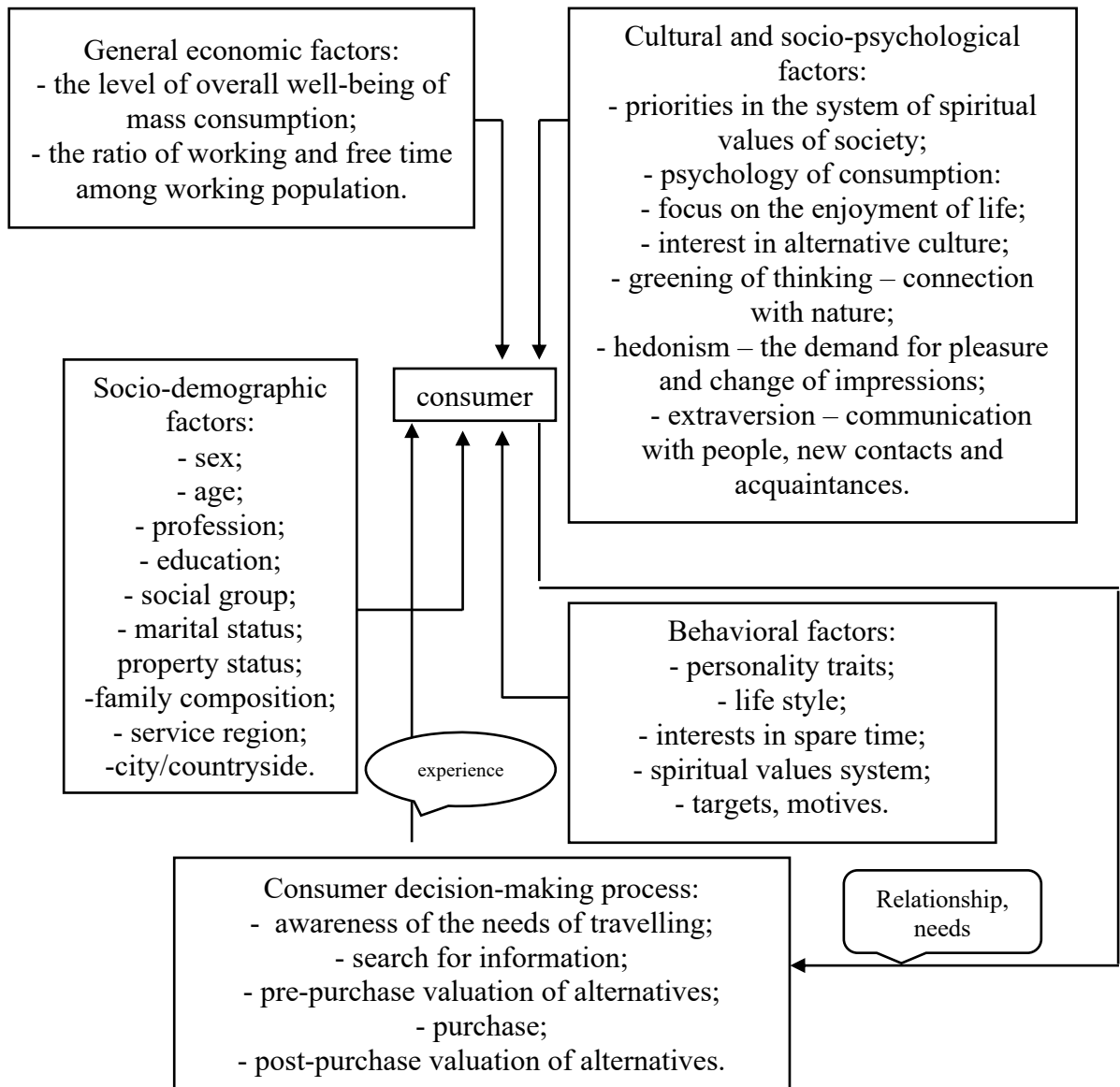


Figure 2 – Factors influencing on demand in the field of tourism

Tourism is an open system, which is significantly affected by natural factors, climatic, economic and social cataclysms, national and regional conflicts, etc. Some of these external influences on the system occur regularly, the appearance of others is impossible to predict. The situation is complicated by the fact that in many cases some types of commercial activity, such as transport, accommodation and catering, are aimed at serving not only organized tourists, but also regular customers [26]. In addition, not all tourists use the services offered by tour operators or travel agents, preferring to act directly, independently contacting transport companies and hotels. Other consumers of tourist services prefer to deal not with travel agents, but directly

with tour operators. A diagram of the formation and sale of an integrated tourist service tour is presented in Figure 3. Here, as contractors and performers of individual services included in the tour package, there are: hotels, restaurants, transport carriers, cultural enterprises (parks, museums, theatres), sports (clubs, stadiums), medical and recreational facilities and sightseeing enterprises. They act as domestic and foreign counterparties and service providers delivering separate services to tour operators to form a tour [31].

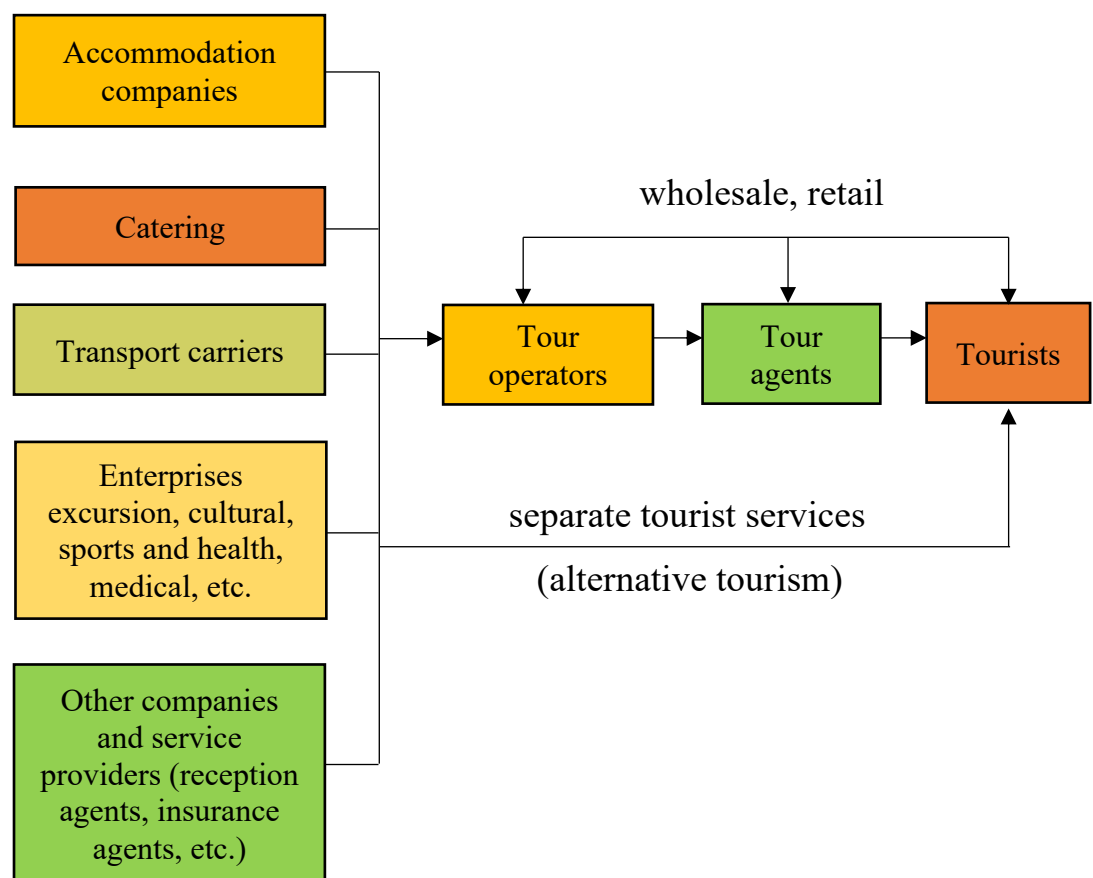


Figure 3 – Scheme of formation and implementation of integrated tourism services – tour

*In the formation and sale of tourism products take part:*

- tour operators – legal entities and individuals engaged in the manufacture, promotion and sale of a tourist product (sometimes referred to in international practice as tour organizers);



- performers of tourist services (contractors) – legal entities or individuals directly providing accommodation, meals, transportation, excursion and other services included in the tour package – hotels, restaurants, transport companies (shipping companies), cultural enterprises (parks, museums, theaters), sports (clubs, stadiums), medical and recreational facilities and excursion enterprises, etc. They act as domestic and foreign contractors who supply the services included in the tour, to tour operators;

- travel agents – legal entities or individuals engaged in the promotion and implementation of the tourist product - intermediaries;

- consumers of the tourist product – any individuals who use, acquire or intend to purchase tourist services (tourist product) for personal needs [31].

Distinguish wholesale and retail sales of tourism products. Wholesale distribution is carried out by intermediary contract, formless-agency contract, commission agreement or agency agreement. Retail sale of tourist products to the final consumer – a tourist is carried out under a contract of sale, in other words, under a contract for the provision of tourist services. Transactions with contractors – transport enterprises, in particular with air carriers, can be executed by chartering agreements (charter, subcharter), defining rental obligations in relation to all or part of the capacity of the vehicle making the charter flight, or contracts for purchasing a block of seats in the vehicle (block -charter), determining the relations of sale and purchase of rights to services for the transport of passengers and their baggage on a charter or scheduled flight.

The conceptual framework of tourism in the Russian Federation was founded in 1996 in the law “On the basics of tourist activity”. From 01.06.2007, the Federal Law dated 05.02.2007 N 12-FL “On Amendments to the Federal Law “On the Basics of Tourism Activities in the Russian Federation” comes into force. The law clarifies the basic concepts used in the Federal Law "On the basics of tourist activity":

“Tourism - temporary trips (travels) of the Russian Federation citizens, foreign citizens and stateless people (hereinafter referred to as persons) from permanent residence for medical, recreational, educational, physical and sporting,

professional, business, religious and other purposes without activities related to the receipt of income from sources in the country (place) of temporary residence” [37].

One of the possible schemes of interaction between performers and consumers of tourist services is presented in Figure 4 below:

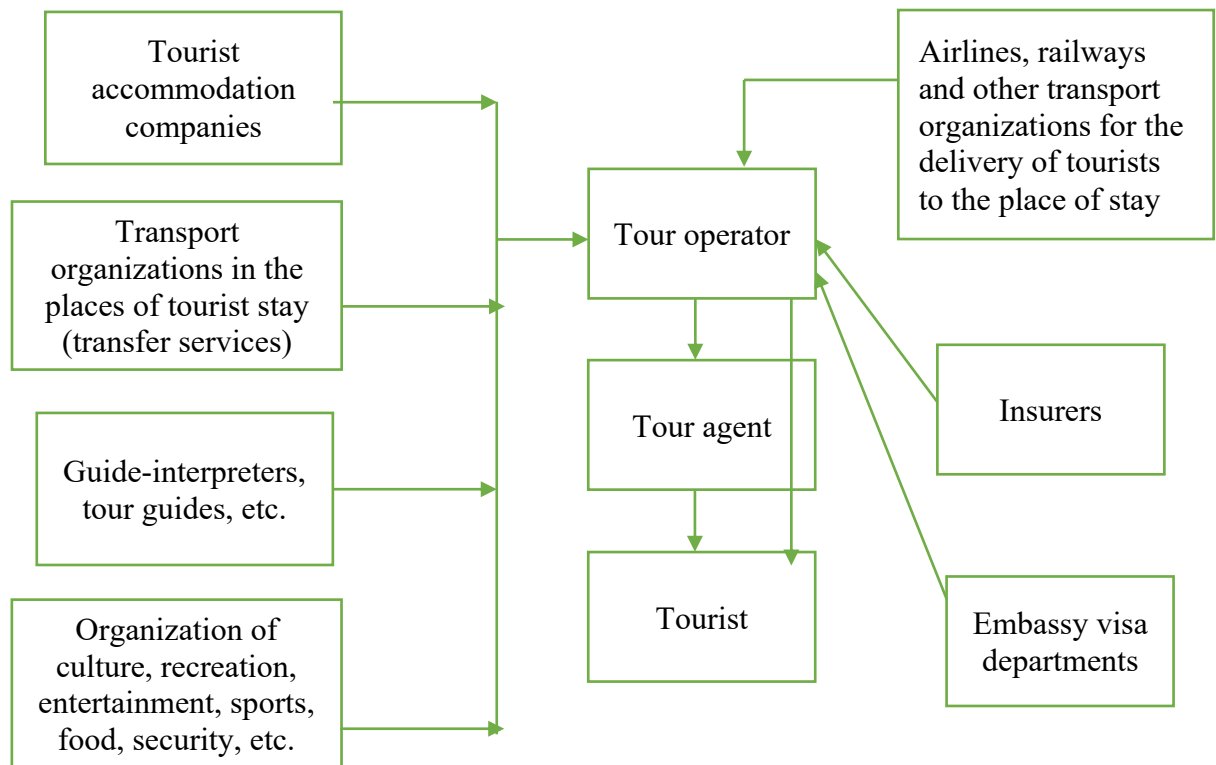


Figure 4 – The interaction of individual subjects of the tourist market

Tourist infrastructure is a complex of existing facilities and networks for industrial, social and recreational purposes, intended for the functioning of the tourism industry. Tourism infrastructure is an integral part of the tourism industry (Figure 5), which includes two elements. The first element is the hospitality industry. To the hospitality industry it is advisable to refer the structure needed for high-quality guest service.

The second element of the tourism industry is the infrastructure component, which is a three-level system. The first level of tourism infrastructure is represented by the production infrastructure – a complex of existing facilities, buildings, transport networks, systems not directly related to the production of tourist products (as opposed to the structures of the two subsequent levels), but necessary for the

provision of tourist services - transport, communications, energy, utilities, finance, insurance, security [25].

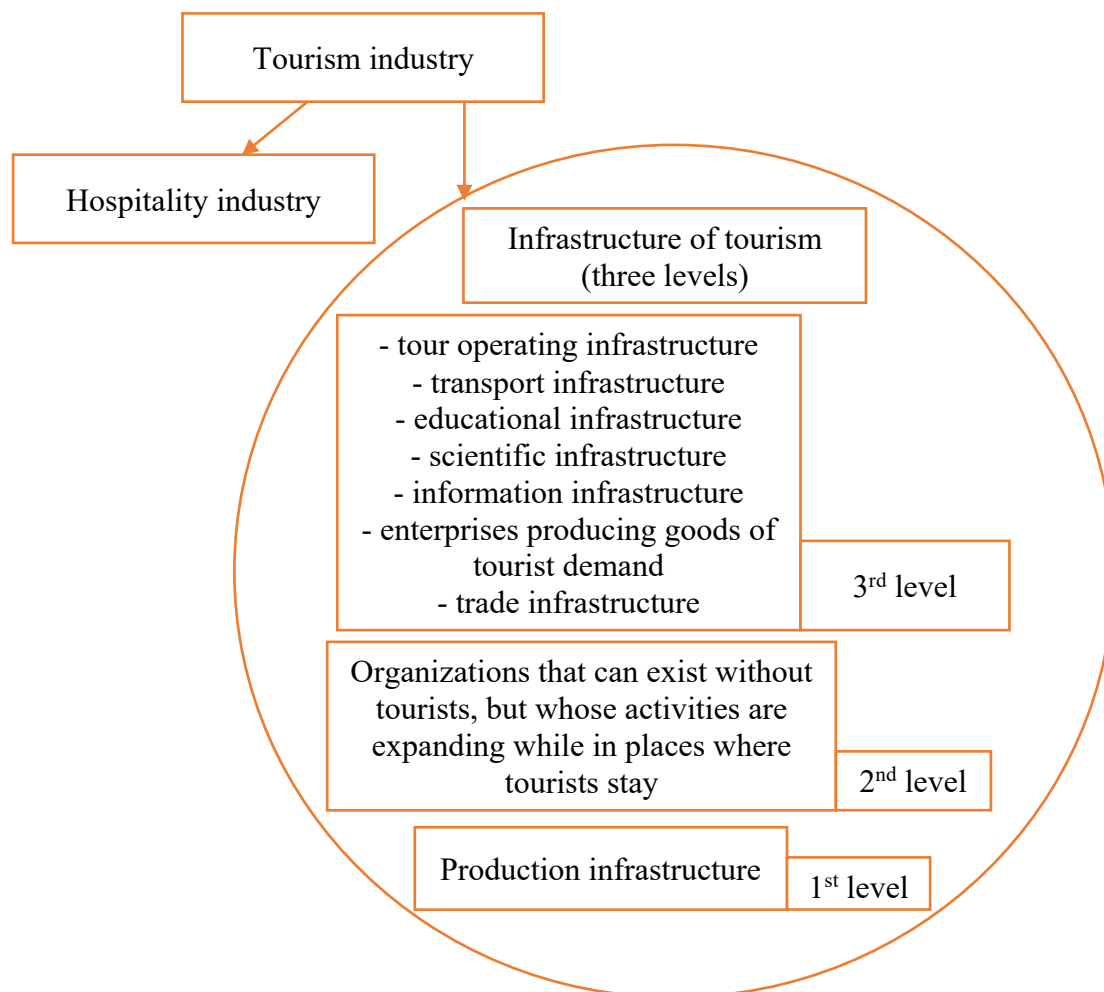


Figure 5 – Tourism infrastructure as part of the tourism industry

The second and third levels of the tourist infrastructure form the enterprises and organizations directly involved in tourist activities and the formation of tourist products. The second level includes those structures that can exist without tourists, but the activities of which expand when they are located in the places where tourists stay. These are car rental companies, taxis; cafes and restaurants; sports clubs, museums, theaters and cinemas, exhibition halls, circuses, casinos, etc.

The third level is represented by the following elements:

- infrastructure tour operating – tourist firms involved in the organization and sale of tourist trips;

- transport infrastructure – transport organizations engaged in tourist transportation;
- educational infrastructure – educational institutions for the training and advanced training of specialists in the tourism industry;
- information infrastructure – booking and reservation system; information and advertising services;
- tourism authorities – government agencies whose functions include managing the development of tourism in the country and in the regions;
- scientific infrastructure – research organizations involved in the collection and processing of statistical data on tourism, the preparation of scientific forecasts and research in the field of economics and sociology of tourism;
- enterprises producing goods of tourist demand;
- trade infrastructure – retailers selling goods of tourist demand [39].

Summing up, it should be noted that tourism itself has an impact on all aspects of the development of the country as a whole and individual region in particular, contributing to increasing income, improving infrastructure, solving the problem of employment by creating new jobs, strengthening interstate and interregional relations.

For Russia, a regional approach to tourism is extremely important because of the vast territory and the enormous natural, social and economic differences.

#### **1.4 The essence of the econometric modeling of macroeconomic indicators in tourism industry**

Econometrics deals with the measurement of economic relationships. It is an integration of economics, mathematical economics and statistics with an objective to provide numerical values to the parameters of economic relationships. The relationships of economic theories are usually expressed in mathematical forms and combined with empirical economics [12].

The econometrics methods are used to obtain the values of parameters which are essentially the coefficients of mathematical form of the economic relationships. The statistical methods which help in explaining the economic phenomenon are adapted as econometric methods. The econometric relationships depict the random behavior of economic relationships which are generally not considered in economics and mathematical formulations.

We shall begin straight away with discrete random variables. A random variable is any variable whose value cannot be predicted exactly. A discrete random variable is one that has a specific set of possible values. An example is the total score when two dice are thrown. An example of a random variable that is not discrete is the temperature in a room. It can take any one of a continuing range of values and is an example of a continuous random variable.

The expected value of a discrete random variable is the weighted average of all its possible values, taking the probability of each outcome as its weight. You calculate it by multiplying each possible value of the random variable by its probability and adding. In mathematical terms, if the random variable is denoted  $X$ , its expected value is denoted  $E(X)$  [10].

Let us suppose that  $X$  can take  $n$  particular values  $x_1, x_2, \dots, x_n$  and that the probability of  $x_i$  is  $p_i$ . Then:

$$E(X) = x_1p_1 + \dots + x_np_n = \sum_{i=1}^n x_ip_i, \quad (1)$$

**Econometric Models:** A model is a simplified representation of a real-world process. It should be representative in the sense that it should contain the salient features of the phenomena under study. In general, one of the objectives in modeling is to have a simple model to explain a complex phenomenon. Such an objective may sometimes lead to oversimplified model and sometimes the assumptions made are unrealistic. In practice, generally all the variables which the experimenter thinks are relevant to explain the phenomenon are included in the model. Rest of the variables are dumped in a basket called “disturbances” where the disturbances are random variables. This is the main difference between the economic modeling and econometric modeling. An econometric model consists of:

- a set of equations describing the behavior. These equations are derived from the economic model and have two parts – observed variables and disturbances;
- a statement about the errors in the observed values of variables;
- a specification of the probability distribution of disturbances.

Aims of econometrics:

The three main aims econometrics are as follows:

1. Formulation and specification of econometric models:

The economic models are formulated in an empirically testable form. Several econometric models can be derived from an economic model. Such models differ due to different choice of functional form, specification of stochastic structure of the variables etc.

2. Estimation and testing of models:

The models are estimated on the basis of observed set of data and are tested for their suitability. This is the part of statistical inference of the modeling. Various estimation procedures are used to know the numerical values of the unknown parameters of the model. Based on various formulations of statistical models, a suitable and appropriate model is selected.

3. Use of models:

The obtained models are used for forecasting and policy formulation which is an essential part in any policy decision. Such forecasts help the policy makers to judge the goodness of fitted model and take necessary measures in order to re-adjust the relevant economic variables.

In our work we will analyze indicators from tourism industry and it's necessary to determine how we can use econometric modeling and forecasting in this sphere. The increasing interest in tourism demand studies has been motivated by the rapid growth of the tourism industry across the globe. Modeling tourism demand in order to analyze the effects of various determinants, and accurate forecasting of future tourism demand, are two major focuses of tourism demand studies [6].

GNP (GDP) – is an indicator of the economy in the conditions of market relations. In foreign practice it's carried out by various methods like extrapolation; economic and mathematical models; methods of deflation; production, distribution methods and the final use method of GDP.

The essence of economic growth factor models is the establishment of quantitative relationship between the volume and production dynamics of GDP, the volume and production dynamics of production resources. In the result of the modeling carried out a search for a such combination of economic growth factors, which will allow the most concentrate of available resources and provide the high economic growth. GDP is defined:

$$\text{GDP nominal} = \frac{\text{GDP}}{\text{GDP real}} * 100\%, \quad (2)$$

The developments in tourism forecasting methodologies fall into two categories: quantitative and qualitative methods. The latest quantitative forecasting literature is dominated by three sub-categories of methods: non-causal time-series models, the casual econometric approaches and other emerging methods such as Artificial Intelligent (AI) techniques. The difference between the first two categories is whether the forecasting model identifies any causal relationship between the tourism demand variable and its influencing variables. Emerged as a new forecasting stream in tourism literature, AI uses techniques derived from rule-based and logic programming systems, with its current interests been focused on less precise heuristic methods, notably genetic algorithms, fuzzy logic, artificial neural networks and support vector machines [38].

The empirical research on qualitative forecasting in the tourism field is very limited. The Delphi method of forecasting is the qualitative forecasting that has attracted the most attention in the tourism literature, which also becomes increasing popular among forecasters and practitioners. This method seeks to combine the knowledge and experience of a selected group of “experts” in the tourism field to form a consensus of opinion about the likely occurrence of specific future events and the probability that these events will take place within specified time periods. Other qualitative forecasting tools, such as risk assessment, historical research, and

scenarios design are also used to deal with different types of future projections (i.e., economic crisis, disasters, etc.) [35].

Traditional tourism demand forecasting proceeds with the following steps:

- formulation of hypotheses based on demand theory;
- deciding model's functional form;
- data collection;
- model estimation;
- hypothesis testing and diagnostic checking; and
- Forecasting and policy evaluation.

The following diagram describes the forecasting process:

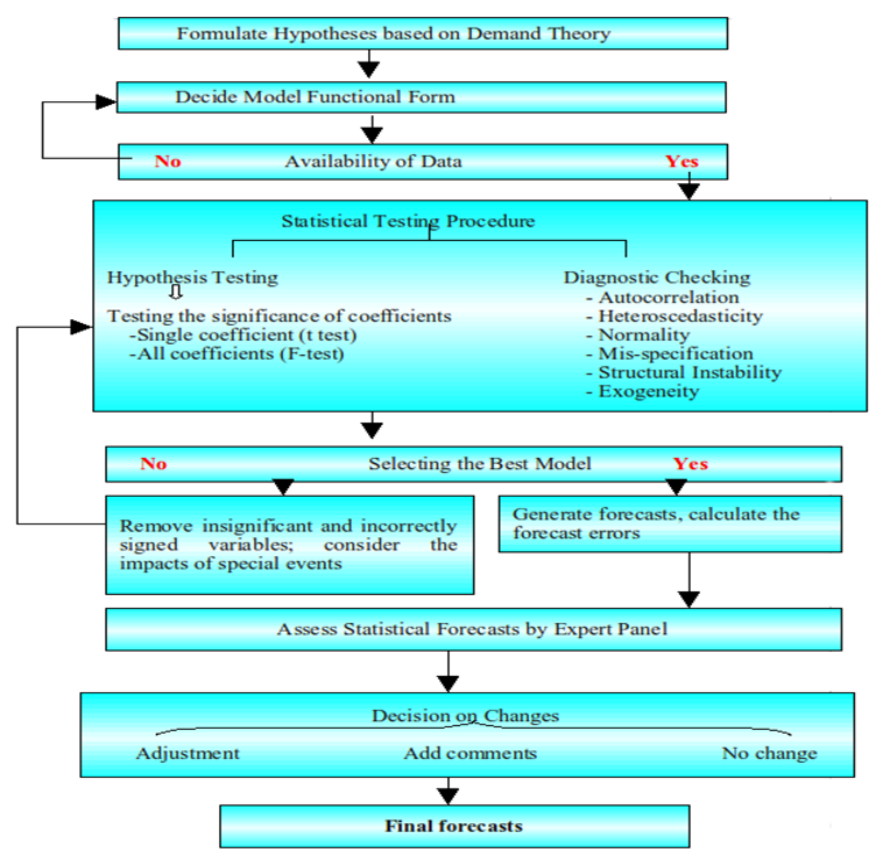


Figure 6 – Forecasting process

A time-series model explains a variable with regard to its own past and a random disturbance term. Particular attention is paid to exploring the historic trends and patterns (such as seasonality) of the time series involved, and to predict the future of this series based on the trends and patterns identified in the model. Since



time-series models only require historical observations of a variable, it is less costly in data collection and model estimation.

Time-series models have been widely used for tourism demand forecasting in the past four decades with the dominance of the integrated autoregressive moving-average models (ARIMA) proposed by Box and Jenkins in 1970. Depending on the frequency of the time series, either simple ARIMA or seasonal ARIMA models could be used with the latter gaining an increasing popularity over the last few years, as seasonality is such a dominant feature of the tourism industry that decision makers are very much interested in the seasonal variation in tourism demand [36].

The methodology of econometrics is not the study of particular econometric techniques, but a meta-study of how econometrics contributes to economic science [21].

The development of econometric methods has proceeded at an unprecedented rate over the last forty years, spurred along by advances in computing, econometric theory and the availability of richer data sets. The aim of this chapter is to provide a survey of econometric methods which we can be implemented in our work.

Econometric analysis is used to develop, estimate and evaluate models which relate economic or financial variables. An applied economic study usually proceeds in the following way:

1. Statement of theory or hypothesis. This step requires economic expertise.
2. Specification of the econometric model to test the theory: linear or non-linear, univariate or multivariate, single or multiple equations.
3. Estimation of the parameters of the chosen model: parametric or non-parametric, Classical or Bayesian estimation.
4. Evaluation: diagnostic tests, ex-post forecasting, simulations.
5. The model is ready for control, forecasting or policy purposes [19].

Speaking about methodology that we used in our research, in general, it is a step-by-step approach consisting of the following steps.

1. *Searching of data*

At first, we need to choose relevant data for building our econometric models. We were monitoring different statistic sources to find accurate country-level data sets. Knoema.ru (World Data Atlas) turned out the most effective one.

## 2. Data selection for the model

In order to select the data for our model, we used the method of simple linear regression. Simple linear regression is a statistical method that allows us to summarize and study relationships between two continuous (quantitative) variables:

One variable, denoted  $x$  is regarded as the predictor, explanatory, or independent variable.

The other variable, denoted  $y$ , is regarded as the response, outcome, or dependent variable.

The relationship between variables ‘ $x$ ’ and ‘ $y$ ’ can be expressed diagrammatically using a straight line. More specifically, the model must be linear in the parameters ( $\alpha$  and  $\beta$ ), but it does not necessarily have to be linear in the variables (“ $y$ ” and “ $x$ ”).

The R-squared value is the square of the correlation coefficient. The correlation coefficient gives us a measure of the reliability of the linear relationship between the  $x$  and  $y$  values (values close to 1 indicate excellent linear reliability). Substituting the data in this model, we obtained the dependent variable " $y$ " with different  $R^2$ .

Given a set of data with ‘ $n$ ’ data points, the slope,  $y$  - intercept and correlation coefficient, ‘ $r$ ’, can be determined using the following formulas (Formula 3,4):

$$y = mx + b, \quad (3)$$

where slop =  $m$ ,

$y$ -int =  $b$ ,

We can calculate  $m$  using the following formula:

$$m = \frac{n \sum(x \times y) - \sum x \times \sum y}{n \sum x^2 - (\sum x)^2}, \quad (4)$$

And  $b$  can be calculated this way:

$$b = \frac{\sum y - m \times \sum x}{n}, \quad (5)$$

For checking the model, we can use the following equation:

$$r = \frac{n \sum(x \times y) - \sum x \times \sum y}{\sqrt{[n \sum(x^2) - (\sum x)^2] \times [n \sum(y^2) - (\sum y)^2]}}, \quad (6)$$

These formulas will help us to select data for the model.

### 3. *Drafting of the multiple regression model*

Factors which were selected by using the simple linear regression model will be included in the multiple regression model.

Multiple regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of two or more variables – also called the predictors. More precisely, multiple regression analysis helps us to predict the value of Y for given values of  $X_1, X_2, \dots, X_k$ . We have regression with an intercept and the regressors  $X_1$  and  $X_2$ . The regression model is:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_n x_n + u, \quad (7)$$

where  $\beta_0$  is the intercept;

$\beta_1$  is the parameter associated with  $x_1$ ;

$\beta_2$  is the parameter associated with  $x_2$  and so on.

It is assumed that the error  $u$  is independent with constant variance (homoscedastic). We wish to estimate the regression line:

$$y = b_1 + b_2 x_2 + b_3, \quad (8)$$

by using the Data analysis Add-in and Regression.

Algorithm of linear regression model interpretation can be evaluated with the help of different tests, such as f-test, t-statistic, p-value (statistical hypothesis test) and others.

### 4. *Evaluation of results and forecasting*

To predict the values of the factors in the future we will use the trend line and the equation of simple linear regression. Then, these predicted values of factors in the future will be substituted in the model of multiple linear regression. So, we obtain the value of the resultant factor or dependent variable ‘y’.

## **2 Analysis and problem identification in the state regulation of tourism**

### **2.1 Current state of the tourism industry in whole world and each country separately: Russia, Cyprus and Czech Republic**

Over the decades, tourism has experienced continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. Modern tourism is closely linked to development and encompasses a growing number of new destinations. These dynamics have turned tourism into a key driver for socio-economic progress.

Today, the business volume of tourism equals or even surpasses that of oil exports, food products or automobiles. Tourism has become one of the major players in international commerce and represents at the same time one of the main income sources for many developing countries. This growth goes hand in hand with an increasing diversification and competition among destinations.

This global spread of tourism in industrialized and developed states has produced economic and employment benefits in many related sectors - from construction to agriculture or telecommunications.

The contribution of tourism to economic well-being depends on the quality and the revenues of the tourism offer. UNWTO assists destinations in their sustainable positioning in ever more complex national and international markets. As the UN agency dedicated to tourism, UNWTO points out that particularly developing countries stand to benefit from sustainable tourism and acts to help make this a reality.

Current developments and forecasts according to actual statistics data are the following [48]:

- international tourist arrivals grew by 4.6 % in 2015 to 1,184 million;
- in 2015, international tourism generated US\$ 1.5 trillion in export earnings;
- UNWTO forecasts a growth in international tourist arrivals of between 3.5% and 4.5% in 2016;

- by 2030, UNWTO forecasts international tourist arrivals to reach 1.8 billion (UNWTO Tourism Towards 2030).

In following tables, we will show you the main indicators of tourism industry in Russia, Cyprus and Czech Republic (Table 3) [47]:

Table 3 – The main indicators of tourism industry in Russia

Main indicators	Years							Rate of growth, %
	2011	2012	2013	2014	2015	2016	2017	
Travel & Tourism Direct Contribution to GDP, \$ million	25000	26000	27000	26000	17000	16000	19000	-24,0
Expenditures, current US\$ million	37343	48096	59504	55383	38434	27653	35585	-4,7
Travel & Tourism Direct Contribution to Employment, thousand people	851,8	808,5	814,2	838,3	807,8	850,1	854,6	0,33
Inbound Tourism Indicators, \$ million	8830	11328	10759	11988	11759	8420	7788	-11,8
Receipts, current US\$ million	16961	17876	20198	19451	13204	12820	14983	-11,6

Note: All data were taken from the <https://knoema.com> (World data atlas).

From the table 3 you can see Rate of growth meanings of different indicators in Russia. Almost all indicators have negative dynamic, except Direct Contribution to Employment indicating that by the year 2017, the number of job places in tourism sphere had been expanded. One more indicator shows positive dynamic despite negative meaning – Expenditures, because Rate of growth -4,7 in this case shows that costs were reduced.

Table 4 – The main indicators of tourism industry in Cyprus

Main indicators	Years							Growth rate, %
	2011	2012	2013	2014	2015	2016	2017	
Travel & Tourism Direct Contribution to GDP, \$ million	1000	1000	2000	1000	1000	1000	2000	100,0
Travel & Tourism Direct Contribution to Employment, thousand people	22,4	24,4	26,5	25,3	23,5	24,7	26,1	16,5
Inbound Tourism Indicators, \$ million	2160	2554	2599	2893	2844	2487	2762	27,8
Receipts, current US\$ million	2707	2732	3020	2920	2481	2757	3128	15,5
Expenditures, current US\$ million	1730	1687	1621	1771	1439	1604	1781	2,95

Note: All data were taken from the <https://knoema.com> (World data atlas).

Almost all indicators have positive dynamic of growth, except Expenditures, indicating that this sphere of tourism needs to be improved by governmental policy.

Table 5 – The main indicators of tourism industry in Czech Republic

Main indicators	Years							Rate of growth, %
	2011	2012	2013	2014	2015	2016	2017	
Travel & Tourism Direct Contribution to GDP, \$ million	6000	6000	5000	5000	5000	5000	6000	0
Travel & Tourism Direct Contribution to Employment, thousand people	249,7	226,4	207,3	211,8	213,5	218,4	223,4	-10,5
Expenditures, current US\$ million	4876	4556	4698	5173	4819	4963	5518	13,1
Receipts, current US\$ million)	8930	8174	7792	7614	6766	7041	7693	-13,8
Inbound Tourism Indicators, \$ million	7172	8096	7456	7042	6822	6056	6308	-12,0

Note: All data were taken from the <https://knoema.com> (World data atlas).

In Czech Republic the picture is almost the same as in Russian Federation, because only expenditures by international visitors have dynamic to growth but in

our case it's the bad sign. According to these indicators we can track a tendency of growth or decrease during the years.

## **2.2 Analysis of the tourism industry market**

Our main purpose in this part is to analyze annual indicators which characterize the tourism market.

The global economy presents its own set of opportunities and threats for businesses in a range of industries. IBIS World's Global Tourism market research report provides the latest industry statistics and industry trends, allowing you to identify the products and customers driving revenue growth and profitability. The industry report identifies the leading companies globally and offers strategic industry analysis of the key factors influencing the market [46].

Now let's look closer what's going on with tourism industry in general. The Global Tourism industry is expected to total \$1.5 trillion by the end of 2018, with revenue rising at an annualized rate of 0.2% over the five years to 2018. Global tourism has performed well during the five-year period, with emerging economies continuing to stimulate growth.

Moreover, countries in Asia and South America have experienced robust growth in per capita income, which has enabled consumers in these regions to take overseas trips in increasing numbers. The benefits of this trend are expected to continue, with industry revenue forecast to grow 3.8% in 2018 alone. The industry is also highly fragmented and comprises both large conglomerates and small, local enterprises that operate in an increasingly competitive setting.

According to official statistics annual growth in tourism industry (from 2011 to 2016) is 4,3%; revenue is 2 trillion; employment– 61,83,9000; businesses – 1,805,197 [45].

Over the past five years, the Global Tourism industry has grown by 0.2% to reach revenue of \$2tr in 2018. In the same timeframe, the number of businesses has grown by 3.0% and the number of employees has grown by 2.0%.

Tourism industry consists of such products as: traveler accommodations; air transportation; travel arrangement and reservations; food and beverage establishments; other transport, including car rental; gasoline; recreation and entertainment. In means that industry presents the range of activities:

- traveler accommodation services;
- airline operation;
- providing hospitality services to international tourists;
- automotive rental;
- travel agent and tour arrangement services.

So, current market of tourism is rather big, and it is subdivided on different sectors as the Global Hotels and Resorts Industry; the Global Casinos and Online Gambling Industry; the Global Airlines Industry and the Global Travel Agency Services Industry.

I decided to choose the Global Hotels and Resorts Industry and analyze the main market indicators of the most successful representatives in this sphere: Hilton Worldwide and Marriott International.

Hilton Worldwide was originally founded as Hilton Hotels Corporation when Conrad Hilton opened his first hotel, the Mobley Hotel, in Texas, United States in 1919. By 2018, the hotel company is in possession of over four and a half thousand hotels, in the United States alone. Some of the hotel brands owned by Hilton Worldwide include Hampton, the largest in terms of hotel numbers, Hilton Hotels & Resorts, Waldorf Astoria, and DoubleTree [43].

The company was ranked as the second largest hotel company in terms of revenue, accounting for just over 9 billion U.S. dollars in revenue. It came in second only to Marriott International, however, Marriott generated over double the revenue of Hilton. The revenue of Hilton Worldwide decreased from 2017 to 2018, accounting for just over nine billion U.S. dollars in 2017 and just under nine billion U.S. dollars in 2018.

Let's look at main market indicators of Hilton Worldwide in the Table 6 below:



Table 6 – Main market indicators of Hilton Worldwide corporation

Main indicators	Years					Rate of growth, %
	2014	2015	2016	2017	2018	
Number of hotels	4073	4278	4521	4780	4856	19,2
Revenue, billion \$	6,69	7,13	7,38	9,14	8,91	33,2

In 2018, the occupancy rate of system-wide Hilton Worldwide hotels was 75.4 percent – much higher than the average worldwide hotel occupancy rate. Hilton’s American Customer Satisfaction Index score has remained at around 80 out of 100 for the last eight years, in 2016 the hotelier had the highest score out of nine other leading companies.

Marriott International started out as a humble root beer stand, set up by J. Willard Marriott and his wife in Washington D.C., United States in 1927. The couple opened their first hotel in Arlington, Virginia in 1957 and Marriott has since grown into a well-known hotel chain with almost 4,500 properties worldwide. The success of the company can, in more recent years, be seen in its annual revenue [43].

After taking a slight dip in 2009 due to the struggling global economic climate, Marriott International’s revenue has climbed gradually, reaching 20,75 billion U.S. dollars in 2018. In the same year, the worldwide average daily rate of Marriott hotels was 178.56 U.S. dollars. In the North America, the average daily rate was 179.53 U.S. dollars and, in the spring of that year, 21.43 million people in the U.S. stated that they had stayed in a Marriott hotel within the past 12 months.

Table 7 – Main market indicators of Marriott International

Main indicators	Years					Rate of growth, %
	2014	2015	2016	2017	2018	
Number of hotels	4175	4424	6080	6520	6906	65,4
Revenue, billion \$	13,80	14,48	15,41	20,45	20,75	50,3

Important performance indicators for the hotel industry include market size, company revenue and brand value. The market size of the global hotel industry was just over 570 billion U.S. dollars in 2017. The hotel company contributing the highest sum to the market size was Marriot International, accounting for a total of 22.3 billion U.S. dollars in revenue. Hilton Worldwide came second to its competitor with a sum of less than half of Marriot's total revenue. However, Hilton Hotels & Resorts recorded the highest hotel brand value in 2018 - valuing at 6.33 billion U.S. dollars.

Other useful performance measures for the hotel industry are the average daily rate (ADR), revenue per available room (RevPAR), and occupancy rates. The Asia Pacific region recorded the highest occupancy rate in the world at 72.8 percent. That being said, the highest global average daily rate and revenue per available room were recorded in the Middle East and Africa [27].

Thus, according to the tables data and rate of growth of the two leading hotel corporations we can conclude that tourism industry now has very high positions in the global economy.

### **2.3 Analysis of macro-economic indicators in tourism industry (tourism contribution to GDP)**

Travel & Tourism is an important economic activity in most countries around the world. As well as its direct economic impact, the sector has significant indirect and induced impacts too.

As one of the biggest contributors to the global The Travel and Tourism (T&T) industry directly contributes about 3.6% of the world's Gross Domestic Product (GDP) and, indirectly contributes about 10.3% to it. As one of the biggest contributors to the global GDP, this industry directly employs nearly 77 million people worldwide, which comprises about 3% of the world's total employment. The T&T industry also contributes to indirect employment generation to the tune of 234 million or 8.7 % of the total employment implying that one in every twelve jobs in

the world is in the tourism industry. The industry also represents about 12% of the total world exports. Global market trends indicate that long-haul travel, neighboring country tourism, rural and ethnic tourism, wellness and health holidays, cultural tourism, spiritualism, ecotourism, sports and adventure holidays, and coastal tourism and cruises are a few emerging areas of tourist interest. From a geographic viewpoint, there has been a remarkable rise in Asian tourists, particularly from China and East Asian countries. Further, the average age of the international tourist has also been reducing representing a growing segment of young tourists who would typically travel to take a break from increasingly stressful professional lives. Given the above factors, robust growth in tourism is likely to continue in the coming years [29].

The direct contribution of Travel & Tourism to GDP reflects the ‘internal’ spending on Travel & Tourism (total spending within a particular country on Travel & Tourism by residents and non-residents for business and leisure purposes) as well as government ‘individual’ spending - spending by government on Travel & Tourism services directly linked to visitors, such as cultural (e.g. museums) or recreational (e.g. national parks). The direct contribution of Travel & Tourism to GDP is calculated to be consistent with the output, as expressed in National Accounting, of tourism-characteristic sectors such as hotels, airlines, airports, travel agents and leisure and recreation services that deal directly with tourists. The direct contribution of Travel & Tourism to GDP is calculated from total internal spending by ‘netting out’ the purchases made by the different tourism industries. This measure is consistent with the definition of Tourism GDP.

It is very interesting to look at the list of most successful and unsuccessful countries according to their direct contribution to GDP. Here below on Figures 7 and 8 you can see that Maldives, Macau, Seychelles, Bahamas, Vanuatu refer to the top countries and Papua New Guinea, Democratic Republic of Congo, Moldova, Uzbekistan and Gabon refer to the bottom.

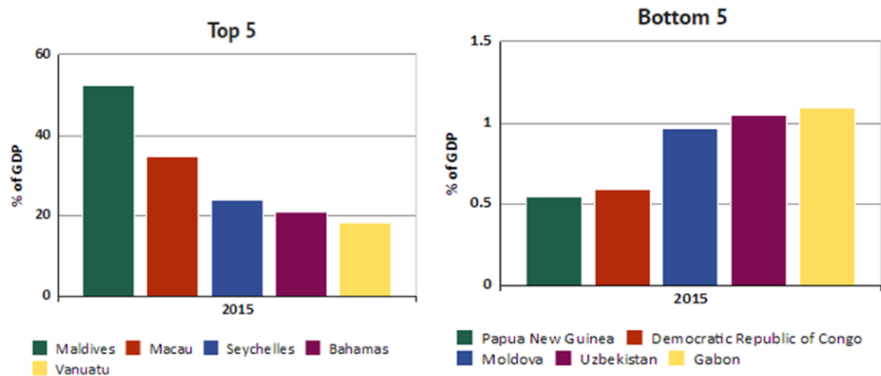


Figure 7 – Top countries Figure 8 – Bottom countries

Speaking about Russian Federation, the direct contribution of Travel & Tourism to GDP in 2015 was RUB 1,106.3 bn (1.5% of GDP). This is forecast to rise by 1.5% to RUB 1,122.4 bn in 2016. This primarily reflects the economic activity generated by industries such as hotels, travel agents, airlines and other passenger transportation services (excluding commuter services) [42].

But it also includes, for example, the activities of the restaurant and leisure industries directly supported the direct contribution of Travel & Tourism to GDP is expected to grow by 3.4% to RUB 1,574.1 bn (1.8% of GDP) by 2026. You can look at this dynamic in Figure 9 below:

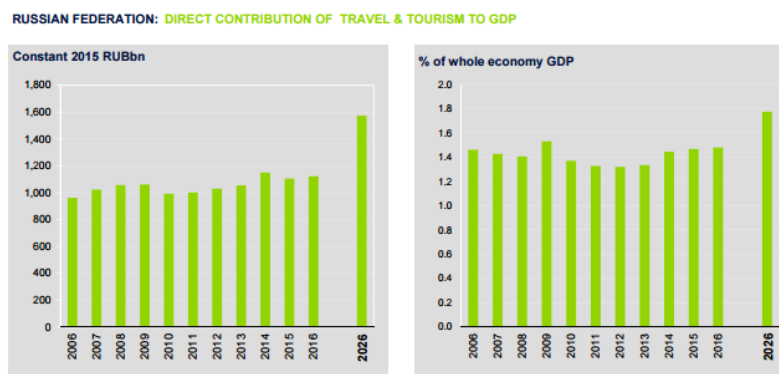


Figure 9 – Direct contribution of Travel & Tourism to GDP

The total contribution of Travel & Tourism to GDP (including wider effects from investment, the supply chain and induced income impacts) was RUB 4,319.8 bn in 2015 (5.7% of GDP) and is expected to grow by 0.4% to RUB 4,336.0 bn (5.7% of GDP) in 2016. It is forecast to rise by 3.3% pa to RUB 6,012.7 bn by 2026 (6.8% of GDP) [33].

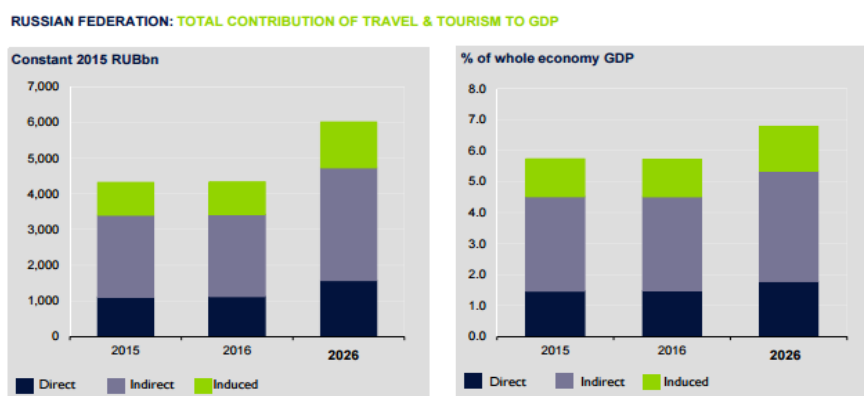


Figure 10 – Total contribution of Travel & Tourism to GDP

So, further we will analyze direct contribution of tourism to GDP (% share) in Russian Federation, in Cyprus and in Czech Republic separately.

The curve in Figure 11 shows the change of GDP percent share within 12 years. In 2017, travel and tourism direct contribution to GDP (% of GDP) for Russian Federation was 1.24 %. Travel and tourism direct contribution to GDP (% of GDP) of Russian Federation fell gradually from 1.68 % in 1998 to 1.24 % in 2017.

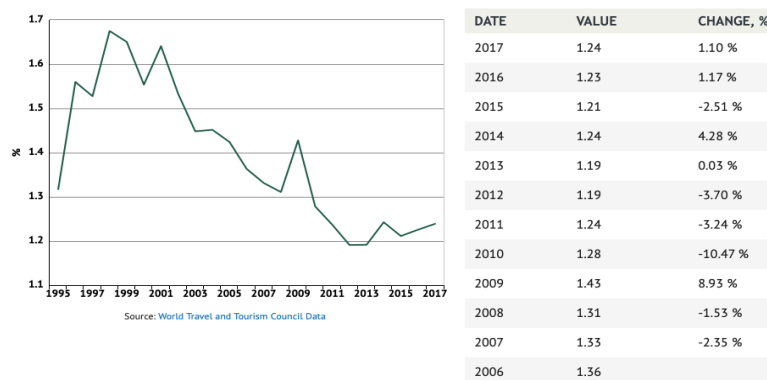


Figure 11 – Direct contribution of Russian Federation to GDP, % share

The situation in Czech Republic is quite better. They have the average percentage of the direct contribution of tourism to GDP about 2,5 – 3%. In 2017, travel and tourism direct contribution to GDP (% of GDP) for Czech Republic was 2.58 %. Though Czech Republic travel and tourism direct contribution to GDP (% of GDP) fluctuated substantially in recent years, it tended to decrease through 1998 - 2017 period ending at 2.58 % in 2017.

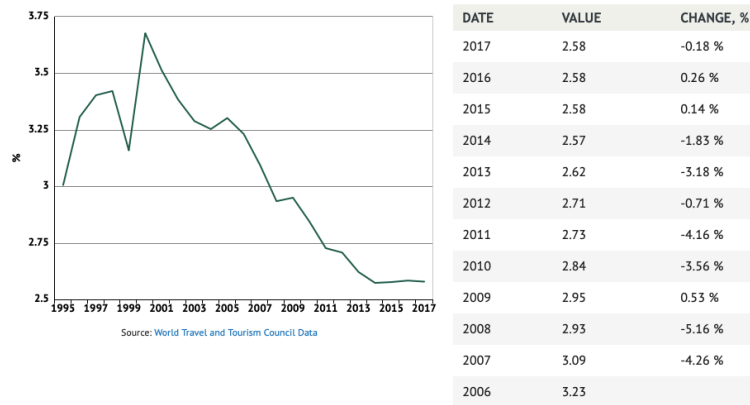


Figure 12 – Direct contribution of Czech Republic to GDP, % share

Cyprus shows the highest indicators of direct contribution of tourism to GDP and it is not accidentally. Cyprus' economy has very strong dependence from tourism, because it's island state and the most part of the local population earns money this way. By the way, we can see from Figure 13, that there was quite long recession during the 2000-2009 year. Only after 2009 year the direct contribution of tourism to Cyprus GDP has grown. Cyprus travel and tourism direct contribution to GDP (% of GDP) was at level of 7.31 % in 2017, up from 6.84 % previous year.

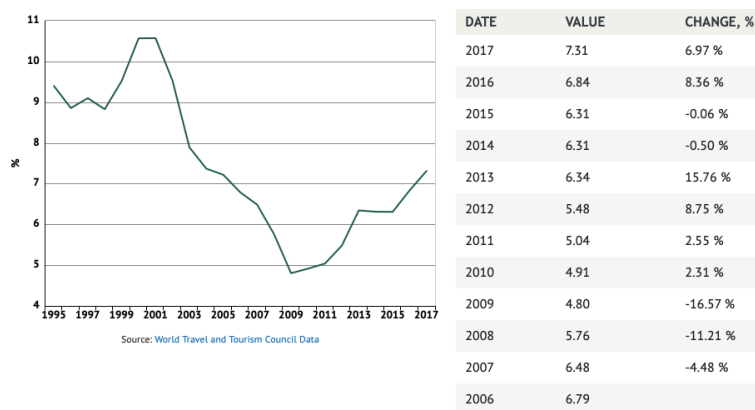


Figure 13 – Direct contribution of Cyprus to GDP, % share

So, our last step in this part will be the comparison analysis of indicators in appliance with schematically depicted graphs that show direct contribution of tourism to each country's GDP [47].

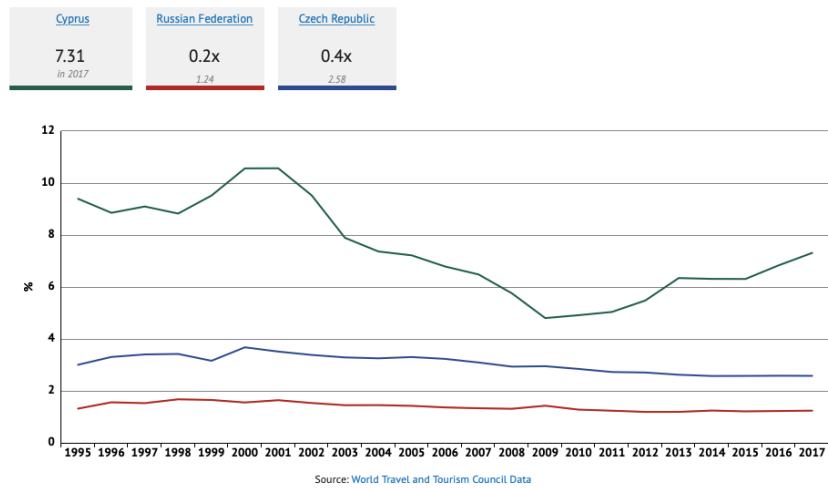


Figure 14 – Comparison analysis of the results

The red color – is Russian Federation, the green one – is Cyprus, and the blue color – is Czech Republic. As you can see, Russian Federation has lowest indicators.

The World Tourism Organisation (WTO) forecasts over one billion arrivals in 2010 versus approximately 693 million today (see Figure 15 below).

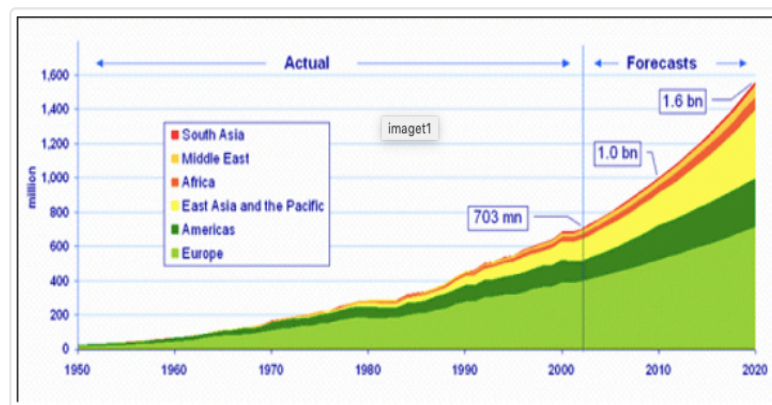


Figure 15 – WTO Forecast for Tourist Arrivals

Worldwide long-distance travel is likely to grow faster (5.4% each year) than travel within regions (3.8%). Continuing world prosperity, growing recognition of tourism’s contribution to employment and economic growth, availability of better infrastructure, focused marketing and promotion efforts, liberalization of air transport, growing intraregional cooperation, and a growing number of Public-Private-Partnerships (PPPs) are seen as the key drivers for tourism in the next decade [48].

As observed, tourism trends around the world are likely to remain robust and the growth of the T&T industry worldwide will significantly impact tourism flows towards the subcontinent.

## **2.4 Revealing the problems of government policy for tourism sector**

Tourist business in Russia is in the stage of deep structural reorganization, institutional formation, formation of intra-industry, inter-industry, inter-regional and foreign economic relations. This fully relates to the process of the formation of tourist infrastructure, the corresponding segment of the labor market, the system of state regulation of tourist activity [30].

At present time, Russia as a country developing international tourism, occupies a very modest place in the global tourist market. The share of tourists entering Russia is approximately 1% of the global tourist flow. This is a low figure, given that cultural Russia's historical and natural potential is much higher than in many countries with traditionally high tourist attendance. In our opinion, this is due to a number of problems, the key of which is the problem of organization and strategic development tourism as a special sphere of professional activity at the state level.

Consequently, researchers are faced with the problem of finding such methods for building an effective industry management system that would strengthen the market position of each Russian organization engaged in serving tourists, and thereby contribute to the further development of the entire tourism business in Russia, our country's growing into the industry world tourism.

However, it should be noted that in Russia certain tendencies towards the organization of the state regulation system of tourist activity have already emerged. The implementation of the state policy in the field of conservation and development of tourism is carried out by the Federal Agency for Tourism of the Russian Federation, which is under the jurisdiction of the Ministry of Sport, Tourism and Youth Policy of the Russian Federation. At the same time, the main principle of state



regulation of tourist activity is that the state recognizes this area as one of the priority sectors of the Russian economy, contributing to its full development. In particular, the state is actively using such essential tools for regulating the activities of tourist organizations and protecting the rights of consumers of tourist services, such as licensing, standardization and certification.

Services on the international tourism in Russia at the present stage does not always correspond to designated standards of service, quality assurance services at entry tourism. This happens for a number of reasons. For example, due to the lack of own experience in regulatory, scientific and methodological support of international tourism and due to insufficient competence (education) of specialists on the organization of tourist activities. This is precisely the reason and, at the same time, a consequence of the ineffective system of international business management in the Russian Federation.

World experience demonstrates the feasibility and even the need to divide national tourist administrations into two branches: the first solves global tasks related to the regulatory framework, collecting and processing statistical information, coordinating the activities of tourism enterprises and regions, international cooperation at the interstate level, and the second is marketing activities.

The need for separation of powers and duties can be explained by the goals set before the tourist administration authorities. The specialized ministry sees the main goal in the development of international tourism in the formation of a modern highly efficient and competitive tourist complex. At the same time, the ministry responsible for marketing activities focuses on creating a positive image of the country in the global tourism market and increasing the attractiveness of the national market for international tourism activities [28].

Thus, since today tourist activity is one of the priority sectors in the Russian Federation, it is necessary to create such a structure for managing the tourism industry, which, beginning on the ground in specific regions with a high tourist

potential, passing across the vertical of power, was completed in the relevant ministries.

At the same time, initiatives in the form of projects and targeted programs went from bottom to top, and funds for financing them in the form of grants that would be allocated for those goals that fully meet the content and spirit of the Strategy for the Development of Tourism in the Russian Federation for the period up to 2015.

However, in the mentioned strategy, in essence, the task of improving and developing the management structure of the sphere of international tourism is not set. At the same time, the division of tourist administrations, relatively speaking, into “management” and “marketing”, will allow more clearly identify priorities in the tourism industry at the international level and develop an appropriate strategy that will contribute, on the one hand, to more efficient use of public funds, and, on the other, to ensure the implementation of public policy at the international level by means of tourist activities [20].

In addition, it is important that specialized government bodies, staffed by graduates of specialized specialties and areas, deal with issues of regulation of the sphere of international tourism at the national level.

Experts in the field of tourism should be trained in state universities, because the state will be able to more effectively control the funds allocated for training. Students should receive education taking into account regional specifics, as future specialists in obtaining a diploma, they will be better focused on professional activities in their region, taking into account state objectives and interests. Both university professors and practitioners should participate in training. This will help ensure the emergence of a new education model combining the acquired qualifications and the formation of the necessary set of key and additional competencies for the required level of training of employees who are able to effectively implement their knowledge and skills in the field of tourism and service.

In addition, it is necessary to develop new conceptual approaches to the organization of practical training of students with mandatory and interested participation of regional and local authorities.

To solve these problems, it is necessary to summarize theoretical ideas, practical work experience and trends in the development of higher professional education in tourism in order to choose strategies for involving Russian higher education, science and industry in the processes of tourism globalization and the world economy.

Thus, the noted regional aspects of building a state regulation system of international tourism in the Russian Federation are due to the need to implement an effective tourism policy by strengthening the vertical management of the industry based on the initiative of each specific region in line with a single development strategy.

### **3 Econometric Modeling and Forecasting of the main macro-economic indicators in Tourism Industry**

#### **3.1 Panel Data Set of key tourism macro-economic indicators and its choice for multiple linear regression model**

In economics panel data model is usually used to see effects of income on savings, with data across years and countries.

Main characteristics of panel data:

- panel data provide information on individual behavior, both across individuals and over time – they have both cross-sectional and time-series dimensions;
- panel data include N individual observed at T regular time periods;
- panel data can be balanced when all individuals are observed in all time periods ( $T_i = T$  for all i) or unbalanced when individuals are not observed in all time periods ( $T_i \neq T$  for all i);
- we assume correlation (clustering) over time for a given individual with independence over individuals (example: the income for the same individual is correlated over time but it is independent across individuals) [3].

In this part we will analyze the panel data model with our own cross-sectional and time-series dimensions.

In Appendix 1 is presented panel data model of the most significant indicator in tourism industry for three countries: Russian Federation, Cyprus and Czech Republic. We took government receipts by international inbound visitors as a variable for our model.

Panel data model presented in the Table (look for Appendix 1) shows us how far the groups of variables are separated apart from each other. For example, the second column contains the years for which the data set is taken, and the third column contains the data on revenues from tourism for each of three countries. What about the other columns, they contain the calculation as well as the result of applying

the method of moving average. It can be said that in some sense it is data arrangement, in other words, the table shows the measure of spread of our data around the mean values.

The last column as one of the methods of data processing operation can be helpful for further drawing up ratings of countries, from which it would be seen, whether the position of one or another country is among leaders or, versus, outsiders with the respect to each other. The use of Panel data model can thus help to assess a tendency (trend) in order to develop and implement the right strategies in the nearest future. For example, we can notice from the table that the largest government receipts by international inbound visitors has Russian Federation.

In our multiple linear regression model, we will analyze the dependence of the direct contribution of tourism to GDP according to the government receipts by international inbound visitors, outbound visitor's expenditures and inbound tourism of the countries. As the basic data we take official statistics data for the Russian Federation, Cyprus and Czech Republic for comparative analysis.

We should decide what indicators should be chosen as X in the model equation. For this purpose, let's make a comparative analysis using an official statistics data according to following indicators: the government receipts by international inbound visitors, outbound visitor's expenditures and inbound tourism. So, here is the statistics data of receives (Table 8):

Table 8 – Variables for the construction of the Simple Linear Regression Model

#	Variables	
	X (Receipts)	Y (Contribution to GDP)
1	16961	25000
2	17876	26000
3	20198	27000
4	19451	26000
5	13204	17000
6	12820	16000
7	14983	19000

Below there is a Table 9 which includes a data of this indicator and its analysis using OLS method and a diagram.

Table 9 – Calculation of the Simple Linear Regression Model's Parameters

I	t	X	y	x*y	x <sup>2</sup>	y <sup>2</sup>
1	2011	16961	25000	424025000	287675521	625000000
2	2012	17876	26000	464776000	319551376	676000000
3	2013	20198	27000	545346000	407959204	729000000
4	2014	19451	26000	505726000	378341401	676000000
5	2015	13204	17000	224468000	174345616	289000000
6	2016	12820	16000	205120000	164352400	256000000
7	2017	14983	19000	284677000	224490289	361000000
Σ		115493	156000	2654138000	1956715807	3612000000
		(Σx) <sup>2</sup>	(Σy) <sup>2</sup>			
		13338633049	24336000000			

slop,m=	1,568340209
y-int,b=	-3590,330819
r=	0,964287499
R <sup>2</sup> =	0,929850381

So, changings in the government receipts by international inbound visitors by 1 unit leads to the changings in direct contribution of tourism to GDP to ~1,5683 units.

Now let's construct in Excel environment a simple linear regression model:

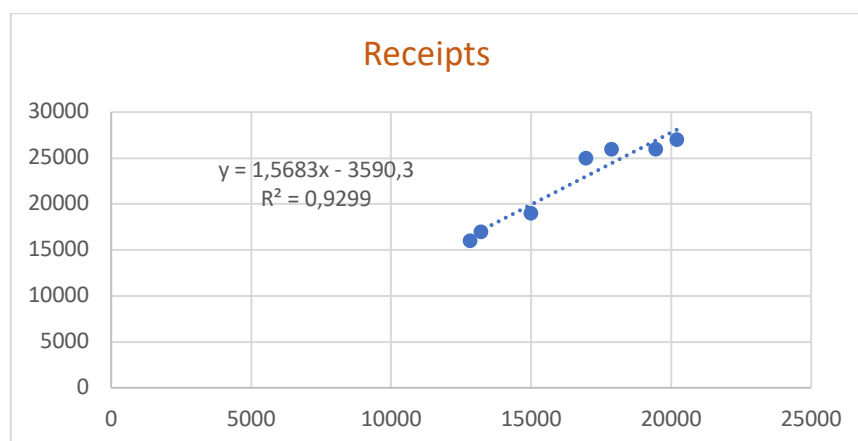


Figure 16 – Simple Linear Regression Model

After the whole range of calculations, we got the next equation for the dependence (Formula 9):

$$y = 1,5683x - 3590,3, \quad (9)$$

and coefficient of determination equal to  $R^2 = 0,9298$

Table 10 presents statistics data of inbound tourism indicator and direct contribution to GDP:

Table 10 – Variable for the Inbound Tourism of the Simple Linear Regression Model

#	Variables	
	X	Y
1	32902	25000
2	42798	26000
3	53453	27000
4	50428	26000
5	34932	17000
6	23951	16000
7	25768	19000

Table 11 provides us with data of outbound visitor's expenditures output and its analysis using OLS method and a diagram:

Table 11 – Calculation of the Simple Linear Regression Model's Parameters

i	t	x	y	x*y	x <sup>2</sup>	y <sup>2</sup>
1	2011	32902	25000	822550000	1082541604	625000000
2	2012	42798	26000	1112748000	1831668804	676000000
3	2013	53453	27000	1443231000	2857223209	729000000
4	2014	50428	26000	1311128000	2542983184	676000000
5	2015	34932	17000	593844000	1220244624	289000000
6	2016	23951	16000	383216000	573650401	256000000
7	2017	25768	19000	489934000	664917796	361000000
Σ		264250	156000	6156651000	10773229622	3612000000
		(Σx) <sup>2</sup>	(Σy) <sup>2</sup>			
		69828062500	24336000000			
slop,m=		0,33548965				
y-int,b=		9620,979988				
r=		0,814270779				
R <sup>2</sup> =		0,663036902				

So, changings in outbound visitor's expenditures output by 1 unit leads to the changings in direct contribution of tourism to GDP to ~0,3354 units.

After construction in Excel environment a simple linear regression model, we have:

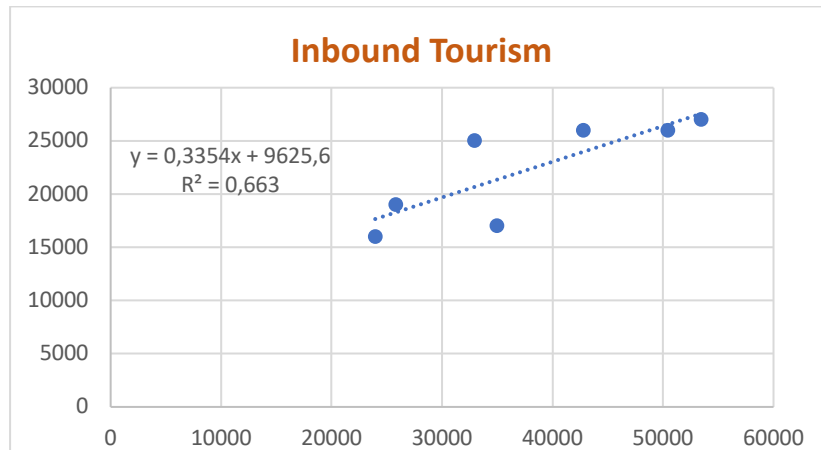


Figure 17 – Simple Linear Regression Model

Now we got the next equation for the dependence (Formula 10):

$$y = 0,3354x + 9625,6, \quad (10)$$

and coefficient of determination equal to  $R^2=0,6630$

As one more possible variable let's put statistics data of outbound visitor's expenditures and direct contribution of tourism to GDP and do calculations and analysis using OLS method, and present a diagram:

Table 12 – Variables for the construction of the Simple Linear Regression Model. Outbound visitor's expenditures and direct contribution of tourism to GDP

#	Variables	
	X	Y
1	37343	25000
2	48096	26000
3	59504	27000
4	55383	26000
5	38434	17000
6	27653	16000
7	35585	19000



Table 13 – Calculation of the Simple Linear Regression Model's Parameters

i	t	x	y	x*y	x <sup>2</sup>	y <sup>2</sup>
1	2011	37343	25000	933575000	1394499649	625000000
2	2012	48096	26000	1250496000	2313225216	676000000
3	2013	59504	27000	1606608000	3540726016	729000000
4	2014	55383	26000	1439958000	3067276689	676000000
5	2015	38434	17000	653378000	1477172356	289000000
6	2016	27653	16000	442448000	764688409	256000000
7	2017	35585	19000	676115000	1266292225	361000000
Σ		301998	156000	7002578000	13823880560	3612000000
		(Σx) <sup>2</sup>	(Σy) <sup>2</sup>			
		91202792004	24336000000			

slop,m=	0,342600751
y-int,b=	7505,036893
r=	0,830026996
R <sup>2</sup> =	0,688944814

So, changings in revenue of outbound visitor's expenditures output by 1 unit leads to the changings in direct contribution to GDP to ~0,3426 units.

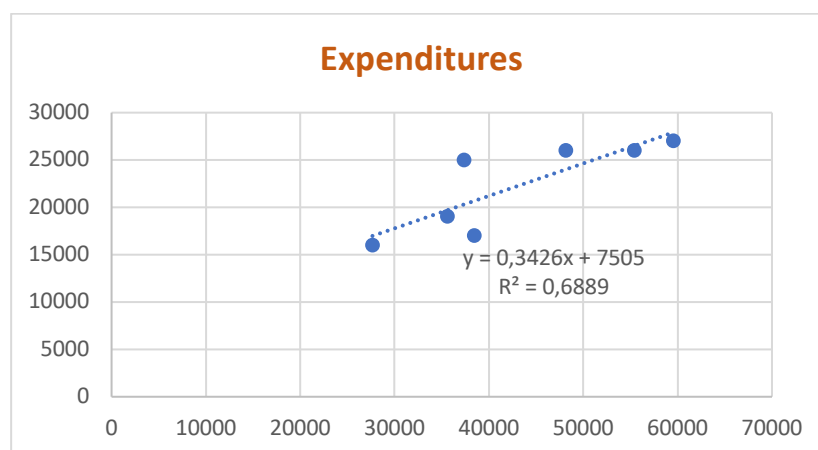


Figure 18 – Simple Linear Regression Model

As a result of the whole range of calculations we got a new equation of dependence (Formula 11):

$$y = 0,3426x + 7505, \quad (11)$$

and coefficient of determination equal to  $R^2 = 0,6889$ .

From this analysis one can see that the government receipts by international inbound visitors and outbound visitor's expenditures are much more suited for further forecasting analysis as its determination coefficients  $R^2$  are sufficiently high.

### **3.2 Algorithms of Econometric Modeling Process of tourism contribution to Russian GDP as one of the key macroeconomic indicators**

The simplest and basic models of econometrics are models with simple linear equations. In our particular case, by means of OLS were received linear models describing the dependence of direct tourism contribution to GDP on the government receipts by international inbound visitors, the dependence of direct tourism contribution to GDP on outbound visitor's expenditures and, finally, the dependence of direct tourism contribution to GDP at the same time on both indicators linearly [13]. Thus, the first model equation has the next form:

$$y = 1,5683x - 3590,3, \quad (12)$$

where  $y$  – the direct tourism contribution to GDP;

$x$  – the government receipts by international inbound visitors;

$r$  – correlation coefficient;

$R^2$  – coefficient of determination.

The second model equation has the form:

$$y = 0,3426x + 7505, \quad (13)$$

where  $y$  – the government receipts by international inbound visitors;

$x$  – outbound visitor's expenditures;

$r$  – correlation coefficient;

$R^2$  – coefficient of determination.

After that, let's consider multiple linear model with three unknowns, in which the government receipts by international inbound visitors take part as well as outbound visitor's expenditures. The data for further processing we will represent in the table below (Table 14), which consist of four columns: in the first one we put number of observation and the other three columns contains the following data: the second one – direct tourism contribution to GDP (mln. rub), the third one – the government receipts by international inbound visitors (mln. rub), the fourth one – outbound visitor's expenditures (mln. rub).

Table 14 – The Data set for the construction multiple linear regression model

Number of observations	y	x <sub>1</sub>	x <sub>2</sub>
1	25000	16961	37343
2	26000	17876	48096
3	27000	20198	59504
4	26000	19451	55383
5	17000	13204	38434
6	16000	12820	27653
7	19000	14983	35585

If the multiple linear regression model has the form:

$$y = \beta_1 + \beta_2x_2 + \beta_3x_3 + u, \quad (14)$$

After founding the coefficients, it's time for evaluation its significance, what we are going to talk about further.

So, we wish to estimate the regression line:

$$y = b_1 + b_2x_2 + b_3x_3, \quad (15)$$

For doing this we use MC Excel and chose Data analysis Add- in and Regression. The only change over one-variable regression is to include more than one column in the Input X Range.

The regression output has three components:

- regression statistics table;
- ANOVA table;
- regression coefficients table.

At first, let's begin with the regression statistics table. It has the following output:

Table 15 – Regression Statistics

		Explanation
Multiple R	0,973309818799817	$R = \text{square root of } R^2$
R Square	0,947332003372132	$R^2$
Adjusted R Square	0,920998005058198	Adjusted $R^2$ used if more than one x variable
Standard Error	1335,36058270013	This is the sample estimate of the standard deviation of the error u
Observations	7	Number of observations used in the regression (n)

In the table above (Table 15) was given the overall goodness-of-fit measures:  $R^2=0,94733$ . Correlation between y and y-hat is 0,97331 (when squared gives 0,94733). Adjusted  $R^2$  MC Excel calculate using this formula 16:

$$R^2 = R^2 - \frac{(1-R)(k-1)}{n-k}, \quad (16)$$

So, according to calculations in Formula 17

$$R^2 = 0,94733 - \frac{(1-0,94733)(3-1)}{4}, \quad (17)$$

Coefficient of determination is equal to  $R^2=0,92099$ .

The standard error here refers to the estimated standard deviation of the term u. It is sometimes called the standard error of the regression. You shouldn't be confused with the standard error of y itself and the standard error of the regression coefficients given bellow.

$R^2 = 0,94733$  means that 94,733% of the variation of  $y_i$  around  $y_{\text{bar}}$  (its mean) is explained by the regressors  $x_2$  and  $x_3$  – that indicates close relationship between variables.

The next step will be to interpret an ANOVA table:

Table 16 – ANOVA

	df	SS	MS	F	Significance F
Regression	2	128295819,9	64147909,94	35,973724615562	0,002773918
Residual	4	7132751,543	1783187,886		
Total	6	135428571,4			

The ANOVA (analysis of variance) table splits the sum of squares into its components.

Total sum of squares is calculated like in formula 18:

TSS = Residual (or error) sum of squares + Regression (or explained) sum of squares, (18)

General formula for  $R^2$  is presented in Formula 19:

$$R^2 = 1 - \frac{\text{Residual SS}}{\text{Total SS}}, \quad (19)$$

Then, from data in the ANOVA table we have (Formula 20):

$$R^2 = 1 - \frac{7132751,543}{125428571,4}, \quad (20)$$

Thus,  $R^2 = 0.94733$  which equals to  $R^2$  given in the regression Statistics table.

The column labeled F gives the overall F-test of  $H_0: \beta_2 = 0$  and  $\beta_3 = 0$  versus  $H_a$ : at least one of  $\beta_2$  and  $\beta_3$  does not equal zero.

Aside: Excel computes F this as (Formula 21):

$$F = \frac{\text{Regression SS}/(k-1)}{\text{Residual SS}/(n-k)}, \quad (21)$$

Then, (Formula 22):

$$F = \frac{(128295819,9/2)}{(7132751,543/4)}, \quad (22)$$

Thus, we got F equal to 35,9737.

The column labeled significance F has the associated P-value.

Since  $0.00277 < 0.05$ , we reject  $H_0$  at significance level 0.05.

The most interesting regression output is the following table of coefficients and associated output:

Table 17 – Regression coefficients

	Coefficients	St. error	t-Stat.	P-value	Lower 95%	Upper 95%
Intercept	-5818,7829	3671,0247	-1,585056	0,1881327	-16011,18156	4373,615590
x <sub>2</sub>	2,058771	0,4647462	4,429881	0,0114230	0,768428234	3,349113077
x <sub>3</sub>	-0,135902	0,1179446	-1,152251	0,3133957	-0,463368794	0,191564885

In this table  $\beta_1$  denote the coefficient of the direct tourism contribution to GDP,  $\beta_2$  - the government receipts by international inbound visitors and  $\beta_3$  - outbound visitors' expenditures. Then:

- column «Coefficient» gives the least squares estimates of  $\beta_j$ ;
- column «Standard error» gives the standard errors (i.e. the estimated standard deviation) of the least squares estimates  $b_j$  of  $\beta_j$ ;
- column «t Stat» gives the computed t-statistic for  $H_0: \beta_j=0$  against  $H_a: \beta_j \neq 0$ . This is the coefficient divided by the standard error. It is compared to a t with (n-k) degrees of freedom where here  $n=7$  and  $k=3$ ;
- column «P-value» gives the p-value for test of  $H_0: \beta_j = 0$  against  $H_a: \beta_j \neq 0$ .

This equals the Formula 23:

$$\Pr\{|t| > t\text{-Stat}\}, \quad (23)$$

where t is a t-distributed random variable with n-k degrees of freedom and t-Stat is the computed value of the t-statistic given in the previous column;

- columns «Lower 95% and «Upper 95%» values define a 95% confidence interval for  $\beta_j$ .

We can conclude from the above output that the fitted line is:

$$y = b_1 + b_2x_2 + b_3x_3, \quad (24)$$

where  $y$  – interception;

$x_2$  – independent variable (regressor);

$x_3$  – independent variable (regressor);

$b_2$  – slope coefficient;

$b_3$  – slope coefficient.

The Multiple Regression Model is

$$y = -5818,7829 + 2,058771x_2 - 0.135902x_3, \quad (25)$$

where  $y$  – dependent variable;

$x_2$  – independent variable;

$x_3$  – independent variable;

$\beta_2$  – unknown coefficient;

$\beta_3$  – unknown coefficient;

$u$  – independent error.

Moreover, we could calculate confidence intervals for the slope parameters with some fixed confidence level, for example, 95%. And even other confidence intervals can be obtained for further compare of the intervals itself. So, 95% confidence interval for slope coefficient  $\beta_2$  is from Excel output:

$\beta_2$  [ 0,768428234; 3,349113077],

$\beta_1$  [-16011,18156; 4373,615590];

$\beta_3$  [-0,463368794; 0,191564885].

Now let's find 99% confidence interval. For this purpose, we check the Confidence level box in the Regression dialog box (in the Data Analysis Add-in) and set the level to 99%. So, 99% confidence interval for slope coefficient  $\beta_2$  is the following: [-0,0663675353494504; 2,47372999754056],

for the  $\beta_1$  – [-7011,0744143251; 17121,1083514032],

for the  $\beta_3$  – [-0,282610066263728; 0,241924528716016].

Ehe higher the significance level is, the wider the confidence interval.

The next type of our variable's significance testing is test hypothesis of zero slope coefficient, in other words, «test of statistical significance».

The coefficient of  $x_2$  has estimated standard error of  $\approx 0,4647462$ , t-statistic of  $\approx 4,429881$  and p-value of  $\approx 0,0114230$ . It is therefore statistically significant at significance level  $\alpha = 0.05$  as  $p < 0.05$ .

The coefficient of  $x_3$  has estimated standard error of  $\approx 0,1179446$ , t-statistic of  $\approx -1,152251$  and p-value of  $\approx 0,3133957$ . It is therefore statistically insignificant at significance level  $\alpha = 0.05$  as  $p > 0.05$ .

Using the test hypothesis on a regression parameter, we test whether  $x_2$  and  $x_3$  have coefficients  $\beta_2 = 1.0$  and  $\beta_3 = 1.0$ .

Example 1:  $H_0: \beta_2 = 1.0$  against  $H_a: \beta_2 \neq 1.0$  at significance level  $\alpha = 0.05$ .

Then (Formula 26):

$$t = \frac{(b_2 - H_0 \text{ value of } \beta_2)}{(\text{standard error of } b_2)}, \quad (26)$$

So, we have (Formula 27):

$$t = \frac{(2.058771 - 1.0)}{0,4647462}, \quad (27)$$

Finally, t is equal to 2,2781.

Example 2:  $H_0: \beta_3 = 1.0$  against  $H_a: \beta_3 \neq 1.0$  at significance level  $\alpha = 0.05$ .

Then (Formula 28):

$$t = \frac{(b_3 - H_0 \text{ of } \beta_3)}{(\text{standard error of } b_3)}, \quad (28)$$

What gives us (Formula 29):

$$t = \frac{(-0,135902 - 1.0)}{0,1179446}, \quad (29)$$

After calculations we have  $t = -9,6308$ .

Overall test of significance of the regression parameters is no less important than previous ones. With the help of this method we test  $H_0: \beta_2 = 0$  and  $\beta_3 = 0$  versus  $H_a$ : at least one of  $\beta_2$  and  $\beta_3$  doesn't equal zero.

From the ANOVA table the F-test statistic is 35,973724615562 with p-value of 0,002773918. Since the p-value is less than 0.05 we reject the null hypothesis that the regression parameters are zero at significance level 0.05.



Conclude that the parameters are jointly statistically significant at significance level 0.05.

Though, MS Excel is very helpful in calculating such types of tests, it also has particular limitations. The most widespread ones are:

- Excel restricts the number of regressors (only up to 16 regressors).
- Excel requires that all the regressor variables be in adjoining columns.
- You may need to move columns to ensure this, for example, if the regressors are in columns B and D you need to copy at least one of columns B and D so that they are adjacent to each other.
- Excel standard errors and t-statistics and p-values are based on the assumption that the error is independent with constant variance (homoscedastic).
- Excel doesn't provide alternatives, such as heteroskedastic-robust or autocorrelation-robust standard errors and t-statistics and p-values.
- More specialized software such as STATA, EVEIWS, LIMDEP, PC-TSP and others is needed.

Thus, using OLS it we found the regression equation (Formula 30):

$$y = -58,187829 + 2,058771 x_2 - 0,135902x_3, \quad (30)$$

Coefficient of determination  $R^2 = 0,947332003372132$  that shows close linear relationship between variables. With p-value  $< 0.05$  the null hypothesis  $H_0$  testing that the coefficients are equal to zero can be rejected.

### **3.3 Forecasting of the direct tourism contribution to GDP of Russia**

One of the main goals of creating econometric modelling research is building forecasts with a sufficient accuracy. For this purpose, particularly in our model, first of all, it is necessary to make a prediction having chosen the required amount of time (years) according indicators under study [15].

Based on the available data for the years 2011-2017 (Table 18, 19) using the method of least squares let's build a time-series simple linear models with two

unknown variables, in which explanatory variable is time, and the dependent variable - the amount of the relevant indicator.

Table 18 ,19 – Time-series simple linear models for the variables  $x_2$ ,  $x_3$

*Time-series simple linear model for the variable  $x_2$*

*Time-series simple linear model for the variable  $x_3$*

i	X2
2011	16,961
2012	17,876
2013	20,198
2014	19,451
2015	13,204
2016	12,820
2017	14,983

i	X3
2011	37,343
2012	48,096
2013	59,504
2014	55,383
2015	38,434
2016	27,653
2017	35,585

Thus, we can get the needed predictive value of the government receipts by international inbound visitors and outbound visitors` expenditures for the years 2018-2022 (Tables – 20, 21).

Tables 20 – Predictive values of the government receipts by international inbound visitors and outbound visitors` expenditures for the years 2018-2022

#	Year (x)	Variable X <sub>2</sub> (y)
1	2011	16,961
2	2012	17,876
3	2013	20,198
4	2014	19,451
5	2015	13,204
6	2016	12,820
7	2017	14,983
8	2018	13,0878
9	2019	11,5649
10	2020	10,742
11	2021	9,9191
12	2022	9,0962

Charts seem to be the clearer expression of data from the table below (Figure 19):

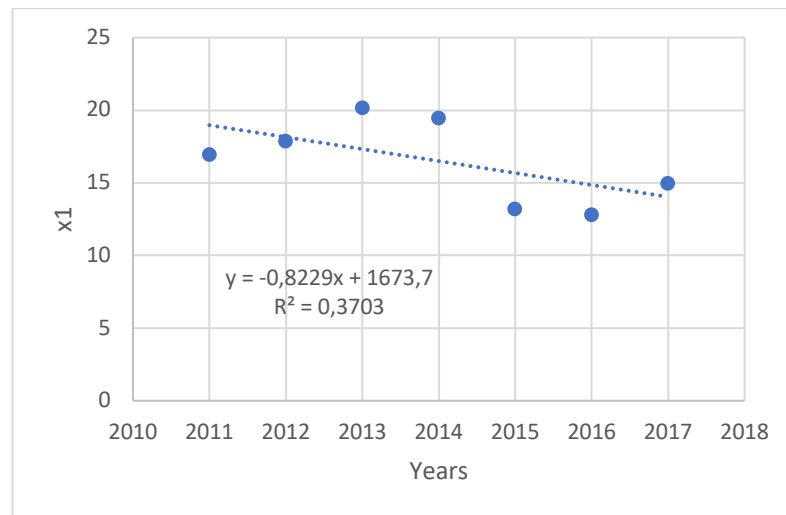


Figure 19 – Time-series simple linear model for the government receipts by international inbound visitors

Tables 21 – Predictive values of the government receipts by international inbound visitors and outbound visitors` expenditures for the years 2018-2022

#	Year (x)	Variable X <sub>2</sub> (y)
1	2011	37,343
2	2012	48,096
3	2013	59,504
4	2014	55,383
5	2015	38,434
6	2016	27,653
7	2017	35,585
8	2018	33,4802
9	2019	31,0791
10	2020	28,678
11	2021	26,2769
12	2022	23,8758

Charts seem to be the clearer expression of data from the table below (Picture 20):

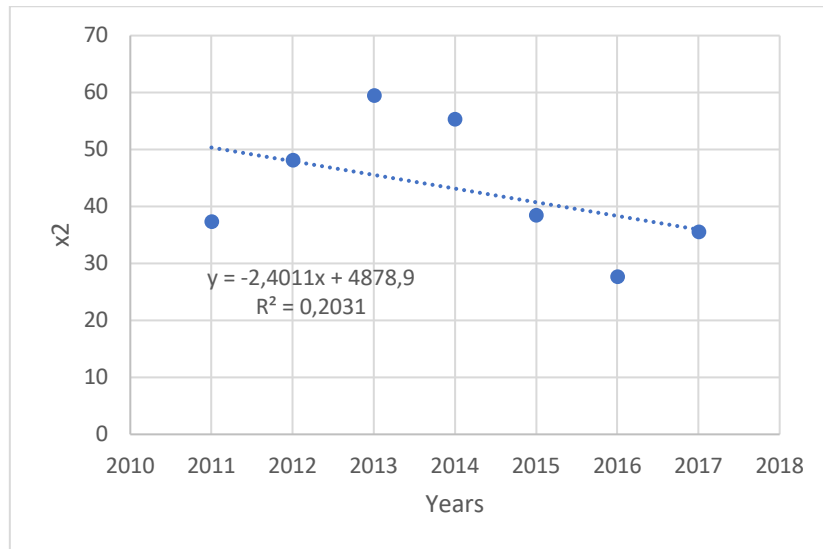


Figure 20 – Time-series simple linear model for the outbound visitors' expenditures

After putting the following values in linear regression model, we can get the predicted values of this macroeconomic parameter for the given years and first of all individually for each sector (Tables 22, 23).

$$y = 1,5683x - 3590,3, \quad (31)$$

Table 22 – Prediction for Simple Linear Regression Model (Receipts)

#	Years	Value
1	2018	3569,774
2	2019	3573,163
3	2020	3573,453
4	2021	3574,744
5	2022	3576,034

$$y = 0,3426x + 7505, \quad (32)$$

Table 23 – Prediction for Simple Linear Regression Model (Expenditures)

#	Years	Value
1	2018	7516,4703
2	2019	7515,6477
3	2020	7514,8251
4	2021	7514,0025
5	2022	7513,1798

Computing results – an equation with sufficiently high determination coefficients. Similarly, according to coefficients, it can be noticed that increasing in volume of the government receipts by international inbound visitors by 1 unit leads to increasing of the direct tourism contribution to GDP by  $\sim 1,5683$  units, and increasing in volume of outbound visitors' expenditures by 1 unit, leads to increasing of the direct tourism contribution to GDP by  $\sim 0,3354$  units.

As can be seen from the data located in the last two tables, we obtain values very close to each other indicating model adequacy and accuracy within permissible error limits. Moreover, the data series have trend towards growth. Then let's do the same steps for both indicators in order to get a forecast for multiple linear regression model (Formula 33).

$$y = -58,1878 + 2,06 x_2 - 0.13x_3 + 1335,36, \quad (33)$$

Table 24 – Prediction for the direct tourism contribution to the GDP:

#	Years	Value
1	2018	1299,7806
2	2019	1296,9556
3	2020	1295,5726
4	2021	1294,1895
5	2022	1292,8065

The prediction based on the constructed model suggests that the direct tourism contribution to GDP will change with a tendency to gradual decrease with linear

subjection during the period 2018 - 2022. In order to reverse this negative trend towards growth, it is necessary to consider measures to improve the state policy for entrepreneurs in tourism industry.

It is possible to state that the government receipts by international inbound visitors and outbound visitor's expenditures undoubtedly plays an important role for the direct tourism contribution to the GDP of Russian Federation and in the economic growth in general.

Of course, one of the biggest limitation of forecasts built on time-series is their «blindness» to possible unexpected events for the predicted period, thus, the achieved results (prediction) are true provided the socio-economic situation will not change to the worst. Hence, local authorities should use resources dedicated for development of these sectors as efficient as possible taking into account a strong relationship between above-mentioned sectors of economy and direct contribution to GDP of Russia.

When implementing any regional strategy, policy makers and authorities should, first of all, be motivated in order to implement effective socio-economic policies, which taken together with optimization of a regional strategy formation will give tangible results in practice and provide sustainable development of the region.

### **3.4 Suggestions and recommendations for improving the government policy for tourism sector**

The development of tourism, especially in the regions, in the modern period of an unstable economic situation shows the heterogeneity of the tourist complex, which leads to different approaches to the development of a model of state support and regulation of the economic mechanism for the development of the latter in the context of modernization of the economy. The effectiveness of tourism is an important factor stabilizing the social and political situation in federal and regional

resorts and creates the basis for the sustainable development of tourism in the regions of Russia.

However, the country has developed a unique system of tourism, including the resort business. At the same time, the imperfection of the management system and state support has a negative impact on tourism. The measures taken in recent years to legally ensure tourism and rational use of natural therapeutic factors and resorts at the federal and regional levels, the phased implementation of the federal target program “Development of federal resorts” and a number of targeted programs for the development of tourist regions have made it possible to reduce the potential negative consequences of restructuring the tourism industry of the country and should be the basis of its transformation into a highly profitable sector of the national economy [25].

The main goal of improving tourism in Russia is the creation of a modern and competitive tourist complex based on the use of unique tourist and recreational resources, national traditions, scientific achievements of tourism studies and ensuring the solution of the main tasks [39]:

- meeting the needs of Russians, citizens of the CIS and other countries in high-quality tourist services and leisure of the population;
- increasing the contribution of the tourist complex to the development of the regional economy;
- preservation and rational use of natural resources and resorts, scientific, cultural and historical heritage.

To effectively achieve the goals, we define a number of fundamental principles [29]:

- conducting a full inventory of private tourist facilities, developing and implementing a system for recording these objects and creating a register of private tourist facilities;
- development and creation of legislative regulatory framework development of tourism, contributing to the successful functioning of all types of tourist organizations of various legal forms and types of ownership;

- formation of a reasonable tax policy and economic mechanisms to stimulate the development of tourist organizations in the regions;
- attracting investment in tourism through the provision of state guarantees and other measures of regional support;
- conservation, rational use and restoration of natural resources and resorts;
- creation of conditions and principles of cooperation of tourist organizations with transport, agricultural, industrial and banking and investment structures, social and compulsory health insurance funds, insurance companies and advertising agencies in order to create a high-tech and competitive domestic market of tourist services;
- strengthening state support and regulation of the industry through the international system of certification of services;
- development of a unified personnel policy through a system of professional training, professional retraining, advanced training, certification, certification of managers and specialists in the field of tourism.

Improving the state regulation of tourism in the region should be carried out through the implementation of:

- State international standards and regulations on quality management of tourist services;
- provisions on certification and certification of managers and specialists of all levels and areas of the tourism sector;
- the formation of the “State Register of Tourism Organizations” based on their ranking into groups, which will allow each tourism organization to occupy an appropriate place on the domestic and international tourism market;
- creation of a unified scientific and educational integrated system of professional training, retraining, improvement and scientific growth of managers and specialists of the industry;
- development of the position and creation of an interdepartmental coordinating council for scientific support and introduction of new technologies in



the economy, management, marketing, advertising and other important areas of tourism.

The phased implementation of these activities will bring tourism to an effectively developing sector of the social services economy, bringing real results in the form of disease prevention, strengthening individual and public health, reproducing the workforce and increasing employment, and developing the resort regions of the Russian Federation.

Along with this, it is necessary to note the main directions of the state policy in the field of tourism development in Russia [24]:

- further development, coordination of the network of tourist organizations state regulation of all forms of ownership and departmental affiliation;
- taking measures to preserve sanatoriums intended for the improvement of the working population, war invalids and other categories of socially unprotected groups, adolescents and children;
- implementation of a strict system of accounting and control of the country's natural medicinal resources based on the state and regional registers of resort and recreational resources.

To implement these important tasks for the development of tourism, it is necessary to develop scientific approaches to the content of state regulation of tourism at the federal and regional levels.

At the same time, in accordance with the scientific developments of scientists from the Federal State Academy of Advanced Training for Executives and Specialists of Resort, Sports and Tourism in Sochi, state regulation of tourism as a social sector of the economy can be described as the impact of state bodies on the activities of economic entities and ensuring normal conditions for the functioning of market mechanisms [24]. In general, the process of state regulation is a complex task, which includes the development of economic policy, the justification of its provisions, the choice of means and methods for implementing this policy.

The impact on the project state regulation of tourism in the region is to regulate the activities of three interrelated parts, namely: tourism resources, the production of tourism and financial flows in the sector.

The content of state regulation of tourism in the region is determined by the objectives of state bodies, as well as the means and tools that state bodies of tourism management in the region have in conducting economic policy [15]. In a market economy, this content includes:

- informing the participants of the tourist market on the state of the country's economy as a whole and the data of the industries in particular, the prospects for their development;

- substantiation of the most important points of the economic policy that state bodies in the field of tourism intend to carry out at this stage of development of the country's economy;

- measures to develop the public sector of the tourist complex - one of the most important instruments of state influence on the economic processes in the country.

At the same time, the objects and instruments of state regulation of tourism are those conditions, processes and relations in the field of reproduction of tourist services, the normal functioning of which the market mechanism provides unsatisfactory or does not provide at all [22]. As such, the following can be distinguished:

- general business processes, such as the economic cycle, money circulation, prices, employment, investment, research and development;

- development of specific basic sectors of tourism through the implementation of regional target programs, namely, “Development of the tourist complex of the Krasnodar Territory”, etc.

- some major tourist centers and resorts of federal significance, the city of Sochi, Anapa;

- complex and proportional development of tourism in various regions of the country.

The set of instruments of state regulation includes the following main elements (Figure 21).

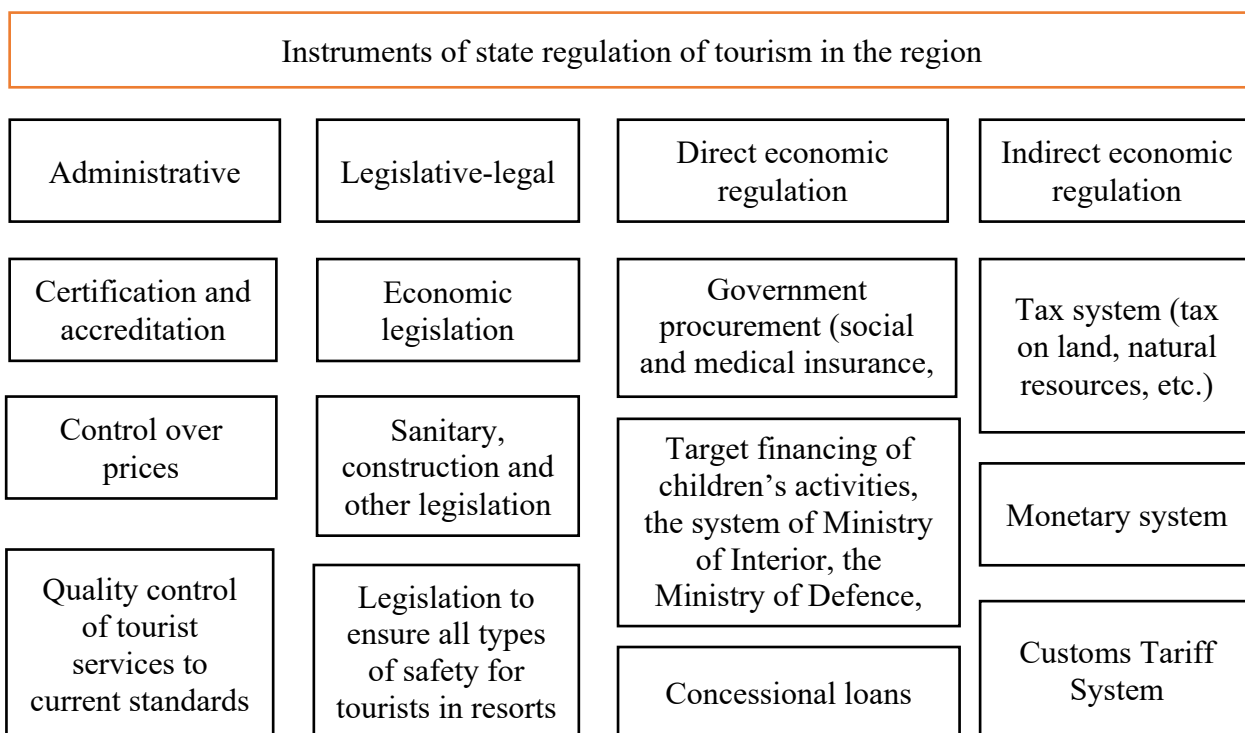


Figure 21 – Instruments of state regulation of tourism in the region

As follows from the materials of Figure 21, each instrument of the groups mentioned above has its own characteristics and can be used separately in certain circumstances. Today, the government tourism authorities in the region are objectively forced to use the entire set of these funds, not limited to any one group.

An effective means of regulating tourism activities in the interests of protecting the rights and interests of consumers is certification of tourist services. According to the definition of an international organization for standardization (ISO) [44], “certification is a procedure for confirming compliance with the result of a production activity, product, or service with regulatory requirements, by means of which a third party documents that a product (process) or service complies with specified requirements” . The document confirming the compliance of certified products (work, services) with the established requirements is a certificate of conformity valid throughout the territory of Russia.

In accordance with the Federal Law “On Technical Regulation” [49], mandatory certification was abolished and replaced with voluntary certification, which fully complies with the international requirements of the World Trade Organization (WTO), which our country intends to join in the coming years.

Voluntary certification is carried out according to the Rules of certification of tourist services, hotel services, sanatorium-resort complexes, approved by Rosstandart, providing for the accounting and analysis of the mandatory requirements implementation of the relevant standards of enterprises aimed at ensuring:

- safety of life and health of tourists and vacationers in the resorts;
- preservation of property;
- protecting the environment;
- compliance of tourist, hotel and sanatorium and recreational services with functional purpose, accuracy and timeliness of execution.

Currently, voluntary certification is carried out special bodies that have developed standards for enterprises and a certification system accredited in the prescribed manner and registered in the Gosstandart of Russia, certification bodies analyze compliance with the approved standards and other regulatory documents:

- indicators of tourist, hotel, sanatorium and other related services;
- the conditions of service of tourists and vacationers;
- information and advertising activities based on the availability of a license and certificates of conformity;
- tourist and resort vouchers;
- cards (passports) of tourist and excursion routes;
- contracts with hotels, licensed transport organizations, insurance companies, partners, etc;
- conclusions of state supervision services (fire, sanitary, epidemiological, technical, etc.).

On the basis of certification examination issued a certificate of conformity. The certificate of conformity is an official document certifying the authority of a

tourist, hotel or sanatorium-resort organization to carry out tourism and sanatorium and health activities, since its tourism and health products are produced at the proper level, and service is carried out in accordance with accepted standards in an accredited certification system.

The refusal of a tour operator, travel agent or sanatorium and resort and hotel complex to certify their services, or a negative opinion on the results of such certification does not allow advertising them, which is the basis of any commercial activity.

In general, the analysis of the voluntary certification system in the regulation of the tourist services market showed its high efficiency in terms of the real impact on the quality of the profile and services provided to tourists and tourists.

An equally important lever for the development of the tourist services market is antitrust policy, which is based on creating a competitive environment, combating monopolism and unfair competition.

The state antimonopoly regulation of the economy includes two interconnected areas: the development and adoption of special antimonopoly legislation and the formation of a system of bodies responsible for antimonopoly regulation.

The antitrust policy of the state in the sphere of tourism, as a form of state regulation, is only beginning to take shape [13]. It is not by chance that in the current federal laws on resort business and tourism there is no mention of this form of state influence on the development of the resort and tourist industry.

Insufficient attention in the current legislative framework is paid to the regulation of investment activities in tourism.

The main ways to stimulate the state investment activity in the tourist regions of the country include:

- tax regulation of investment activities;
- institutional transformation of the economy associated with the creation of industrial groups;
- real protection of property rights.

In general, government regulation of tourism is an effective means of stimulating investment activity, improving the quality of services provided and solving social problems in terms of the real health of the nation. However, it is important to bear in mind that the main directions of state policy should be the stability and competitiveness of the tourist complex.

## CONCLUSION

The creation of a country's wealth and dynamism depends upon the competitiveness of its firms and this, in turn, relies fundamentally on the capabilities of its entrepreneurs and managers.

Austrian economist Joseph Schumpeter defined: an entrepreneur is a person trying to transform a new idea or invention into a successful innovation. In particular, entrepreneurship is the power of creative destruction that exists in the markets and in production, while at the same time creating new products and models of entrepreneurship. Creative destruction provides a dynamic and long-term economic growth.

So, in part 1.1 we defined the concept, types and form of entrepreneurship.

Part 1.2 represents main directions of entrepreneurship support. This study covers state entrepreneurial policies in the following categories: general perspective of entrepreneurship, tax and regulatory climate, access to capital, entrepreneurship education and intellectual capital. Each is important to encouraging entrepreneurship as a career option and supporting entrepreneurial activity [11].

Further in part 1.3 we characterized the tourism market and peculiarities of its regulation. Some special characteristics of tourist products are as follows [9]:

- tourism is an intangible product;
- ownership of tourist product is non-transferable;
- production and consumption are closely interrelated;
- tourism is an assembled product;
- tourism product does not move;
- the demand of tourism product is very unstable;
- wide coverage;
- a luxurious concept.

Complex functioning of the tourism industry organizations lies in the fact that the assessment of the quality of tourist services by the consumer is quite subjective

and depends on various factors: general economic, cultural and socio-psychological, socio-demographic, personal and behavioral.

Then we found out theoretical foundations of the organization of tourism support and development in the regions of Russia. It should be noted that tourism itself has an impact on all aspects of the development of the country as a whole and individual region in particular, contributing to increasing income, improving infrastructure, solving the problem of employment by creating new jobs, strengthening interstate and interregional relations. For Russia, a regional approach to tourism is extremely important because of the vast territory and the enormous natural, social and economic differences.

Speaking about the second part in general our task was to analyze tourism industry in three countries: Russian Federation, Cyprus and Czech Republic. In part 2.2 we found such significant indicators such as: Travel & Tourism Direct Contribution to GDP; Expenditures; Travel & Tourism Direct Contribution to Employment; Inbound Tourism Indicators and Receipts for the period from 2011 – 2017. Meaning of these indicators and calculated Rate of Growth It helped us to make conclusions about current situation of the tourism industry in these countries.

In the part 2.2 we made analysis of the tourism industry market on the example of two leading representatives of Global Hotels and Resorts Industry (which in turn is one of the tourism market components) Thus, according to their market indicators we can conclude that tourism industry now has very high positions in the global economy. By the way, the continuation of this theme is part 2.3, where direct contribution of tourism to GDP served us as one of a basic macro-economic indicator for analyzing tourism industry. We took tables from official statistic with percentage share of direct tourism contribution to GPD in Russian Federation, Cyprus and Czech Republic. So, Russia has the lowest indicators, it means that Russian government should make appropriate arrangements to improve the situation.

Part 2.4 was dedicated to revealing the problems of government policy for tourism sector. The key of which is the problem of organization and strategic development tourism as a special sphere of professional activity at the state level.



Thus, the noted regional aspects of building a state regulation system of international tourism in the Russian Federation are due to the need to implement an effective tourism policy by strengthening the vertical management of the industry based on the initiative of each specific region in line with a single development strategy.

Our third part is devoted to the construction of simple linear regression model and multiple linear model. In part 3.1 we presented panel data model of the most significant indicator in tourism industry for three countries: Russian Federation, Cyprus and Czech Republic. We took government receipts by international inbound visitors as a variable for our model. Besides, using simple linear regression models we selected two the most appropriate variables with high coefficient of determination. From this analysis one can see that the government receipts by international inbound visitors and outbound visitor's expenditures are much more suited for further forecasting analysis as its determination coefficients  $R^2$  are sufficiently high and which values are very close to 1.

In part 3.2 we step by step followed the algorithms of the Econometric Modeling Process of tourism contribution to GDP of Russia as one of the key macroeconomic indicators. For this purpose, we drafted the multiple regression model and tested it for significance using different tests. We get the coefficient of determination  $R^2 = 0,96566083757723$  that shows close linear relationship between variables. With  $p\text{-value} < 0.05$  the null hypothesis  $H_0$  testing that the coefficients are equal to zero can be rejected.

The last part was forecasting of the direct tourism contribution to GDP of Russian Federation. Based on the available data for the years 2011-2017 using the method of least squares we built a time-series simple linear models with two unknown variables, in which explanatory variable is time, and the dependent variable - the amount of the relevant indicator. Thus, we can get the needed predictive value of the government receipts by international inbound visitors and outbound visitors' expenditures for the years 2018-2022.

The prediction based on the constructed model suggests that the direct tourism contribution to GDP will change with a tendency to gradual decrease with linear subjection.

After analysis we made, such suggestions and recommendations for improving the government policy for tourism sector will be offered. The main ways to stimulate the state investment activity in the tourist regions of the country include:

- tax regulation of investment activities;
- institutional transformation of the economy associated with the creation of industrial groups;
- real protection of property rights.

In general, government regulation of tourism is an effective means of stimulating investment activity, improving the quality of services provided and solving social problems in terms of the real health of the nation. However, it is important to bear in mind that the main directions of state policy should be the stability and competitiveness of the tourist complex.

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## ANNEX A

### Panel Data Model of government receipts by international inbound visitors for three countries: Russia (1), Cyprus (2) and Czech Republic (3)

Id	Time	Variable	Individual mean	Overall mean	Overall deviation	Between deviation	Within deviation	Between deviation
i	T	$x_{it}$	$x_i \text{ aver.}$	$x \text{ aver.}$	$x_{it} - x \text{ aver.}$	$x_i \text{ aver.} - x \text{ with bar}$	$x_{it} - x_i \text{ aver.}$	$x_{it} - x_i \text{ aver.} + x \text{ aver.}$
1	2008	15821	2679,555556	9075,44444	13141,44444	-6395,888889	13141,44444	22216,88889
1	2009	12369	2679,555556	9075,44444	9689,444444	-6395,888889	9689,444444	18764,88889
1	2010	13239	2679,555556	9075,44444	10559,44444	-6395,888889	10559,44444	19634,88889
1	2011	16961	2679,555556	9075,44444	14281,44444	-6395,888889	14281,44444	23356,88889
1	2012	17876	2679,555556	9075,44444	15196,44444	-6395,888889	15196,44444	24271,88889
1	2013	20198	2679,555556	9075,44444	17518,44444	-6395,888889	17518,44444	26593,88889
2	2008	3231	459,3888889	9075,44444	2771,611111	-8616,055556	2771,611111	11847,05556
2	2009	2474	459,3888889	9075,44444	2014,611111	-8616,055556	2014,611111	11090,05556
2	2010	2371	459,3888889	9075,44444	1911,611111	-8616,055556	1911,611111	10987,05556
2	2011	2751	459,3888889	9075,44444	2291,611111	-8616,055556	2291,611111	11367,05556
2	2012	2696	459,3888889	9075,44444	2236,611111	-8616,055556	2236,611111	11312,05556
2	2013	3015	459,3888889	9075,44444	2555,611111	-8616,055556	2555,611111	11631,05556
3	2008	9228	1398,777778	9075,44444	7829,222222	-7676,666667	7829,222222	16904,66667
3	2009	8164	1398,777778	9075,44444	6765,222222	-7676,666667	6765,222222	15840,66667
3	2010	8068	1398,777778	9075,44444	6669,222222	-7676,666667	6669,222222	15744,66667
3	2011	8930	1398,777778	9075,44444	7531,222222	-7676,666667	7531,222222	16606,66667
3	2012	8174	1398,777778	9075,44444	6775,222222	-7676,666667	6775,222222	15850,66667
3	2013	7792	1398,777778	9075,44444	6393,222222	-7676,666667	6393,222222	15468,66667

Figure 22 – Panel Data Model of government receipts by international inbound visitors for three countries: Russia (1), Cyprus (2) and Czech Republic (3)