

**“Game Theory and Competitive Analyse”
for Developing the Turistic Priorities in Albanian Region.
The Case Study of Vlora Coast.**

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Abstract: *In this article, consider optimal decision making in two-alternative forced-choice. The paper research consist by analyzing the mathematical models of TAFC decision making and show that all but one can be reduced to the drift diffusion model, implementing the statistically optimal algorithm (most accurate for a given speed or fastest for a given accuracy). The paper research prove further that there is always an optimal trade-off between speed and accuracy that maximizes various reward functions, including reward rate (percentage of correct responses per unit time), as well as several other objective functions, including ones weighted for accuracy. These findings address empirical data and make novel predictions about performance under optimality. This literature review of decision making (how people make choices among desirable alternatives), culled from the disciplines of psychology, economics, and mathematics, covers the theory of riskless choices, the application of the theory of riskless choices to welfare economics, the theory of risky choices, transitivity of choices, and the theory of games and statistical decision functions. [1] [2] [3] In this paper we are trying to adopt the concrete data of ITC in Vlora region for touristic promoting. The theories surveyed assume rational behavior: individuals have transitive preferences. There are two points of hypothesis in this study: 1. The GTCA (Game theory and competitive analyse) theory and it apply in Albanian condition for promoting the tourism. 2. MMDM (Mathematics Models and Decision Making) theory and apply in developing the conditions for promoting the reforming in Albania. Game theory, a discipline that was given its modern form by the mathematician John von Neumann, models markets in which the actions of competing parties influence one another while each acts in its own self interest.*

Key words: *Decision making, disciplines data, science influences, mathematical and economical theory, statistical decisions, touristic priority in Vlora hotels, ICT system*

1 Introduction

1.1 Conceptual and economical model overview and ITC data

These perspectives provide deeper insights into price structures than simple supply and demand, thereby guiding investment and capital expenditure decisions. This paper identifies and addresses of the important factors underlying of the, conceptual and economical model in decision making in Albania and changes in the form of organization, under the administrative and implementing reforms in developing the touristic models in Albanian region. The paper also introduces with the changes in Internet users, SME and Vlore University, for taking part in this study. Analyzing a different competitive setting, a political scientist and a mathematician have recently extended the age-old technique for dividing a piece of cake between two individuals one cuts, the other chooses to fair division among many parties when economics and other complex forces are at work. Such disputes might center on dividing cities and natural resources at the close of a multi-nation war. The theoretical solution of the underlying mathematical problem that of fair, envy-free division among many

parties, might lead eventually to tools that heads of state could apply to deciding disputes like the division decisions. The 1994 Nobel prize in economics was shared by John Harsanyi and the mathematicians John Nash and Hirschman & Holmes for their introduction of several different concepts of market equilibrium, situations in which each player is in an optimum position relative to its competitors.

Information and Communication Technologies (ICT) have recognized a significant development in the tourism industry. Digitization of all processes of the tourism development is a modern alternative to the rapidly growing tourism industry in developing countries like Albania. Technology opportunities today offer the possibility of excellence and development in the field of ICT in the tourism industry. However, the level of tourism development varies according to regions, countries and continents. The main objective of this research is to examine the ICT developments in tourism in Albania, particularly in its applications in hotels in the Vlorë, Ionian coast, as a great opportunity to bring them on the international tourism market. In particular, the research examines the extent of ICT in enterprises of small and medium tourism. The level of Internet presence is sufficient to study the level of the Destination Management System. Results show that the market district of Vlorë is in the early stages of its deployment. However, the low spread of ICT expresses once again the lack of cooperation between tour operators and structures responsible for tourism development.

It also shows a lack of cooperation between companies that operate in the ICT sector and operators in the tourism sector. The spread of ICT is a great opportunity to raise the revenues of small and medium tourism enterprises through their presence in the global market. Ionian coast hotels occupy an important place in the tourism industry in Albania. The increase of their activity is closely linked with the spread of information and communication technologies (ICTs). It is very important to present first of all their demographic characteristics. According to our assessment 58% of all the properties are family owned and about 13% of them have an ownership group. 83% of the structures are multi-storey buildings and 17% of them are only one-floor buildings. The amount and type of distribution in the structures in the hotels of this region is an important element. Overall capacity of the hotels is small. Data show that only 10% of the hotels interviewed have more than 40 rooms, 22% have 10-14 rooms. None of the hotels have a capacity greater than 80 rooms. About 96% of all rooms are single, while the largest number of rooms is composed of double, triple or matrimonial rooms. As regarding the number of the apartments available, data show that only 10% of hotels have two to three apartments, while hotels with more than three apartments are only 3% of hotels in the sample. A good part of them offer services such as restaurant, bar, respectively 85% and 82%. Only 17% do not have restaurants. The working time in 60% of the structures of the sample is the entire year while the rest, 40%, work only seasonally. Regarding their location we can state that 56% of them are located on the seashore, 16.6% of 50m from the sea, and 12.5% of them more than 100 meters from the sea. The number of employees varies from season to season.

2 Literature Review and Hypotheses

2.1. Focus of Mathematical concepts and using in management plan

Game theory is the branch of decision theory concerned with interdependent decisions. The problems of interest involve multiple participants, each of whom has individual objectives related to a common system or shared resources. Because game theory arose from the analysis of competitive scenarios, the problems are called games and the participants are called players. But these techniques apply to more than just sport, and are not even limited to competitive situations. In short, game theory deals with any problem in which each player's strategy depends on what the other players do. The appropriate techniques for analyzing interdependent decisions differ significantly from those for individual decisions. Using this methodology, whether or not we end up ahead of another player will be of no consequence; our only concern will be whether we have used our optimal strategy.

The reasons for this will become clear as we continue. In gaming, player actions are referred to as moves. The role of analysis is to identify the sequence of moves that you should use. A sequence of moves is called a strategy, so an optimal strategy is a sequence of moves that results in your best outcome. The aim of this paper is to analyze the use of Internet by families in a developing region as is Vlore and its surrounding cities. The methodology used includes the study through a questionnaire realized in a sample of students in university environments who are asked as representatives of their families, in relation with the use of Internet, the frequency, the reasons for using it or not and other issues about quality of services.

Primary data are gathered with a quality. Advanced econometric techniques are used to present an assessment of demand for Internet functions, including socio-demographic characteristics of individuals and their families. First of all it is presented a graphic analysis of data, looking for relationships between different characteristics. Then, we have specified the two estimates with econometric models, the first for access at home and the other for the intensity of Internet use outside home environment including the purpose of use, reasons for obtaining Internet service as well as its impact on improving social capital.

2.2 MMDM and management analyses

Mathematics Models and Decision Making help in such cases when we want to plan a management strategy and management SWOT analyses. Sometimes, the mathematical models use to create a root strategy for the statistical and modeling decisions in management analyses. Supposedly there was de-emphasis of such bugaboos as rote memory and drill and a renaissance of understanding and discovery. A pioneer econometric focuses on the adoption of the broadband Internet service (Madden, Savage and Simpson 1996), with data collected in Australian homes. These authors were the first to discover that demographic characteristics are one of the main influences on the individual decision to use the broadband Internet service. Goolsbeey (2000), Duffy and Deno (2001), Kridel and Taylor (2002) also examine the demand for Broadband Internet access with data from different samples in US cities and households. U.S. Department of Commerce (2002) has its contribution in this regard too.

-H1 The development of a platforms of Mathematical Models of Economical Decision Making Processes for developing the touristic region in Albania.. Mathematical Economic Decision Making using in Albania for promoting the tourism.

2.3 Evolution of Mathematical Decision and internet technology development

Dual monitoring system stimulates the use of multiple method for reporting and auditing ,increased transparency of the process and the reliability of conclusion reached.The combination of internal monitoring and external anabling effective action for improvements in the form of assistance from specialized units of local and national. An important question that was raised with regard to the Gauss problem was "why?" One of the most powerful human desires - to know why - is filled with ambiguity, and our obligation as individuals and as a community is as much to engage in a dialogue that enables us to figure out what we are asking when we ask the innocent sounding "why?" as it is to try to come up with answers. Internet is today one of the most common phenomena of technology development. Though a relatively new network with its beginning related to the use for military purposes, today it is the most widely used network in the world for business, research, study, entertainment and social purposes. Historically, the use of systems to a common network to allow connection of two computers began to develop in the early 60's. In 1969 the decision was made to implement an experiment for the network that will enable the exchange of information between different computers.

H 2 If one starts with the hypothesis that aspects of mathematics learning could have an impact on the way one conducts views the world in other domains as well, what are some of the possible mind-expanding ways in which it might be conceived? It is unquestionable that the "structure of the disciplines" movement of the past fifteen years solved some problems in the past decade for some people.

If we analyze the Internet phenomenon from a historical perspective in terms of adoption of a new product/service, the Internet is nothing different from other products/services. Just as happens with some new products, demand for content increases gradually until, in a very short time, it becomes a commodity. The advent of Internet has pervaded our daily lives. The number of websites has increased from 130 in 1993 to well over 17 million in 2000 (Connolly, 2000). The aim of this study was also the construction of a model which shows the demand (access and services). In fact, the use of a provided service by an individual is possible.

This observation is central to the model of Averous Artileder (1973) and still represents a cornerstone for modeling demand for the Internet (Taylor, 1994). An econometric model remains a goal for the future. The literature suggests that Internet users differ from other users of telecommunication about the kind of attributes that are important. This is supported by studies in 2002, when they describe the differences between the phone application and Internet application. Jackson et al. (2002) tends to use a model of utility maximization, assuming that customers want to have income, leisure activity and also online.

Theory shows that the maximization of customer service that has access at home is limited by consumption of other goods and the allocation of time and income, but note that while theoretical arguments suggest that the application is used to save money and time.

According to Taylor (1994), there are two types of respondents to the questionnaire:

G_0 : the set of respondents without access to the network

G_1 : the set of respondents with access to the network.

The individual utility function is expressed in the form

$$U^i = U^i(x^i, q^i \delta^i) \text{ or } U^i(x^i, q^i) \text{ when } \delta^i = 1$$

x^i is the vector of goods consumed by individual i , δ^i is a dichotomous variable that determine the access status of an individual if he has (use) Internet access; Otherwise

$$q^i = q, \forall a \in G_1 \text{ and } q^i = 0, \forall a \in G_0$$

$\delta^i = 1$, if the individual has access and $\delta^i = 0$, otherwise.

The problem of maximizing service later said the individual functions for each type of individual as follows:

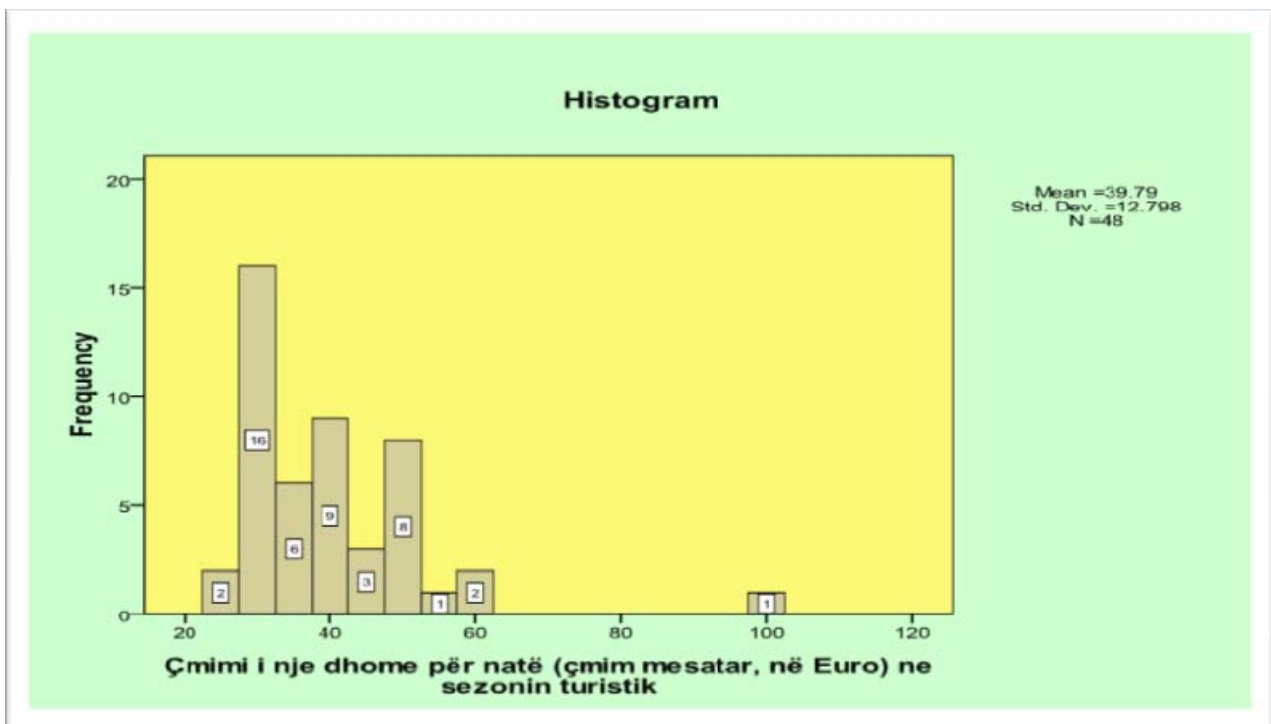
$$U = U^1(x^1, q) \text{ if } \delta = 1 \\ U^0 = U^0(x^1) \text{ if } \delta = 0$$

A linear approximation of the conditional utility function would be:

$$U_i^* = x_i^T \beta + \epsilon_i$$

Where U_i^* the utility function, β is the vector of parameters to be estimated and represents the array of secondary services that are found to x_i^T vector and error is the ϵ_i .

- According to the model that we want build, Internet access and use are functions of several variables:1)
 Internet Access = f (income, technology, social demographic distribution)
 2)Using the Internet = g (income, technology, demographic distribution, access)



Tab 1 The price for staying a night during the touristic season.

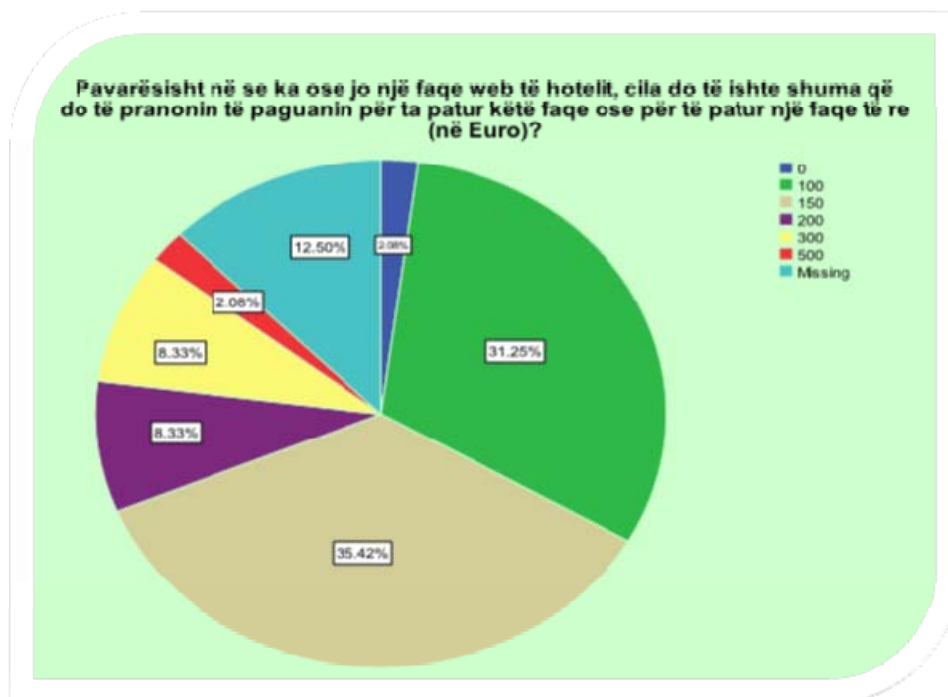
3. Methodology and Research Goal

For the past several years, some study have collaborated on an interdisciplinary program of experimental and theoretical research involving applied mathematics, experimental psychology, systems and human engineering, and computer science to develop a normative-descriptive theory to address problems of team-distributed decision making / they have developed empirically validated normative-descriptive models that capture the complexity, dynamicity, and uncertainty of the task environment and, in turn, quantify the resulting team performance, coordination, and decision strategies in specific situations objectives of this chapter are to present several of these models, to introduce the mathematical tools used to support the modeling activity, to demonstrate the process by which the normative-descriptive theory is applied to generate predictions of actual team performance, and to offer some novel hypotheses on team decision-making behavior and performance / point out the characteristics of the distributed dynamic decision-making problems that have been addressed, to define the normative-descriptive modeling approach, and to describe

a unique research paradigm for distributed decision making that has been used to generate and collect the data to develop and validate the mathematical models.

The Internet has experienced explosive growth and the Internet traffic has grown exponentially in the last decades. Technology has developed to resolve the traffic problem, in ways that many homes and access points rely on different services, with different speed, offered by Internet service providers. There are some early descriptive studies carried out on the basis of independent surveys concerning the adoption of Information Technologies and communications in different countries. In Spain the National Institute of Statistics (INE) began to compile this kind of information as of 2001. Different reports have been written to consider demographic influences on the adoption of Internet in general, and especially broadband Internet.

Tab 2. The web page of the hotel



Finally, we should mention the report issued by the OECD (2001) which analyzes the adoption of Wideband Internet connections in 30 countries. After careful consideration of literature review, primary data are gathered through a survey done in the University of Vlora. Students were the respondents as representatives of a middle level family type, including so families of all the region (Vlore, Fier, Berat,). The sample of students is based on quotas according to year of the study and type of degree. Face to face interviewers were administered during March-April 2011. The questionnaire designed includes all these topics and comprises about 50 variables.

Data for the first section consist in obtaining information about the extent spread of fixed line very important tool of ICT. We also analyzed the degree of their proliferation according to the service. [25][26][27] Cell phones and the purpose of using them is the subject of the second section. Questions are asked about the type of operator, costs, frequency of use, the number of SMS, the frequency of changing the mobile device, etc. Questions also deal with information about the quality of Internet services and the impact of ICT

usage on social capital. Great attention has also been paid to the access to computer and Internet use at work and study environments for developing the touristic situation in Albania.

Conclusions and recommendation

The literature suggests that Internet users differ from other users of telecommunication about the kind of attributes that are important. This is supported by studies in 2002, when they describe the differences between the phone application and Internet application. All hotel owners claim that the interest of the clients has increased for the Internet service and 100% of them claim that customers ask about the existence of this service. During this analyze, we are find these conclusions: 1. The internet lines are very use full in Albania. Game theory is the branch of decision theory concerned with interdependent decisions. We are study this theory to promote the modeling system in Albanian touristic conditions and to arrangement the profits during touristic season.

The problems of interest involve multiple participants, each of whom has individual objectives related to a common system or shared resources. Because game theory arose from the analysis of competitive scenarios, the problems are called games and the participants are called players. In this study the touristic operators are "the players"

2. All hotel owners claim that the interest of the clients has increased for the Internet service and 100% of them claim that customers ask about the existence of this service. In terms of payment for this service, the hotel pays monthly to the ISP, from a minimum of 20 euro to a maximum of 150 euro. 28% of them pay up to 20 at 30 euro per month while 27% of them pay 40-50 euro per month. Regarding their location we can state that 56% of them are located on the seashore, 16.6% of 50m from the sea, and 12.5% of them more than 100 meters from the sea. The number of employees varies from season to season.

In this paper research we are trying to solve two hypotheses that are the indicators of this research. MMDM and ITC modeling system are showing on points like:

1. Our intention in this work was to analyze the internet access and use by students and their families in Vlora region.

2. In future, we will try to build a mathematical model explaining the relation between internet access and use by other variables, economical, socio-demographical, individual characteristic related to mode of use, etc. Our research will be improvement with other data in another our publishing. The literature suggests that Internet users differ from other users of telecommunication about the kind of attributes that are important.

References

- R Bogacz, E Brown, J Moehlis, P Holme, Psychological 2006 - psycnet.apa.org
 Busemeyer, JR, & Rapoport, A. (1988). Psychological models of deferred decision making. *Journal of Mathematical Psychology*, 32, 91-134. Rapoport, A., & Burkheimer, GB (1971) Models for deferred decision making. *Journal of Mathematical Psychology*, 8
 MODELS; DECISION MAKING; DOCUMENTATION; ECONOMETRICS; ECONOMIC ANALYSIS; ELECTRIC POWER; INFORMATION VALIDATION; LOAD MANAGEMENT; MULTIVARIATE ANALYSIS; POWER DEMAND; ECONOMICS; MANAGEMENT; MATHEMATICS
 Brown, Stephen 1. (1996b). *Posing mathematically*. Portsmouth, NH: Heinemann Press.
 Brown, Stephen 1. (1997). *Math lingo vs. plain English: Multiple entendre*. *Humanistic Mathematics Network Journal*, 15, 5-10. *Mathematical Models NEWELER YEAR 2010*, PP 23
 Study calls for better services', by A. Warren, *The Press*, December 5, p. 2.
 Garrett, N., Abbott, M. Cheung, V and DeSouza, R. (2007). *International students*. Paper presented at the Asian Mental Informatic usage and internet pp23,

Clark, J., Baker, T., & Li, M. (2007). Student success: bridging the gap for Chinese students in collaborative learning. Refereed paper for the 18th ISANA Annual Conference, Success in International Education, from the 27-30 November 2007, at the Stamford Grand, Glenelg, Adelaide, Australia.

Cooper, J (2005) 'Students not adapting to New Zealand: Study calls for better services', by A. Warren, The Press, December 5, p. 2.

MOH Data report Year 2010, pp 34,45,67,121

ISSH International JOURNAL year 2010, pp21

University of Vlore analyze, A Dumi analyze year 2009, publish Vlore Conference, pp45

Tirana Albania Focus Journal, year 2011, pp 7,8,9

Agencia de Calidad del SNS. Instituto de Información Barómetro Sanitario 2009. Madrid, 2010.

WHO. European Health for All Database, May, 2010

Instituto Nacional de Estadística. May 2010. [www.mathemetical formual.mat.it](http://www.mathemetical.formual.mat.it)

OECD. Health Care Quality Indicators, OECD Health Data 2009, Paris www.ecosante.org

Market Access, Europe, Data from EURO CARE- 4, 2010.

Borkan J et al. Renewing primary care: lessons learned from Affairs 29,

Martín JJ. Crisis económica y sostenibilidad del Sistema Nacional de Salud, El Médico 2010;1109:16–19.

Mathematic model and Analyse M Ramosacaj IEF C Conference May 2012

Concepts and CASE STYDY M Ramosacaj Mathematical book Publish 2010, pp23,45,123,156,157,190

All rules and most examples here have been borrowed from: Dixit, Avinash K., and Barry J. Nalebuff. Thinking Strategically. New York: W. W. Norton & Co., 1991.

This is an excellent nontechnical book on game theory, and this paper, internet link www.gtheory.mat.it

Gama theory and mathematical concepts, internet link [www.mathemetical theory.nu.it](http://www.mathemetical.theory.nu.it)

