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SOME COMMENTS ON AN ENTROPY-LIKE TRANSFORMATION OF SOLEHA AND SEWILAM

In this paper, we discuss the so-called “entropy-like transformation” recently proposed by Soleha and Sewilam (2007, [14]) given as $g(x) = F(x) + R(x) \ln R(x)$, $x \geq 0$, where F and $R = 1 - F$ are respectively the distribution and reliability functions of a positive continuous random variable X . We suggest that its derivative $g'(x)$ is an easily pdf (probability density function) generator if $R(x)$ is of an exponential type $R(x) = \exp[-A(x)]$, $A(x) > 0$ for every $x \geq 0$. Some illustrations are given in this sense.

***Key words:** entropy-like transformation, hazard rate, HHR - homographic hazard rate, modified weibull pdf.*

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ON SOME GENERALIZATIONS OF THE GUIASU DIVERSITY INDEX WITH APPLICATIONS IN DIVERSITY MANAGEMENT PROBLEMS

In this paper, we propose some generalizations of the Guiasu diversity index(2003) which are now called weighted diversity measures of order α and type β of Guiasu, with applications in diversity management problems.

***Key words:** diversity measuring, weighted diversity measures of order α and type β of Guiasu, Maximum Diversity Principle, diversity management problems.*

MSC 2000: 62P20, 91B82, 92D40, 94A17

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DETERMINING THE OPTIMAL LENGTH OF USEFUL INFORMATION

The paper analyzes different solution to store large string data types from the

viewpoint of memory size and process effort. There are described three methods for storing data. Each solution reduces the necessary amount of space for storing the database by implementing ways that minimize unused space. There are defined indicators used to describe the level of efficiency of each solution. Based on their values, the methods are compared and depending on the developer objective it is selected the more appropriate. The paper describes an empirical approach of data optimization that is developed around indicators, methods and comparing analyses.

Keywords: *optimal, optimization, data, length, information, size.*

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THE SOCIAL ALLOCATION OF THE RESOURCES: THE OASIS THEORY (PART TWO)

*The social allocation of the resources is a complex process in which different categories of social subjects interact in a dynamic web of negotiations, conflicts and alliances. The architecture of the power relationships between the various “points of social coagulation” is not unique determined by the “economic reasons”. Instead, there is a large set of factors, which influence its exact configuration including not only the economic ones, but also the cultural and behavioral variables. Thus, this paper intends to put forward a model of the basics mechanism of the social allocation of the resources in the framework of a version of the **mandate theory** developed in Talpos et al (2005).*

Part II is an attempt to examine some empirical evidences in the favor of some results derived from this foundation. The main conclusion of the paper could be resumed by the idea that the access to the social resources is not only a matter of “brute” social power but also a result of certain cultural paradigm, which characterize a social space. Finally, the “water masters” should live together with the other in the same sometime fragile oasis sanctuary.

Keywords: *agency, negotiation / parallel associations, social allocation, critical social resources, cultural paradigm.*

JEL Classification: *H1, M14, O17, P35, Z1*

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POSSIBILITIES AND LIMITS IN QUANTIFYING THE ECONOMY OF CULTURE AT NATIONAL AND INTERNATIONAL LEVEL

Compared to other sectors of the economy, culture has an additional dimension – it not only creates wealth but it also contributes to social inclusion, better education, self-confidence and the pride of belonging to an historic community. The concept of „economy of culture” includes both cultural and creative sectors. Certain countries and organizations, such as Great Britain, France, the Nordic countries, UNESCO, OECD, WIPO have made consistent efforts in setting up a methodology for quantifying the economy of culture. One way of measuring the economy of culture focuses on the value added to the economy. Also, we present several statistical indicators that quantify the dimension of the cultural-creative field, and identify an econometrical multiple model that reveals the relationship between some of them. In the article it is applied the analysis of variance method in order to identify the existence of significant differences between geographical and between linguistic-cultural European regions, according to the values of some of the statistical indicators.

Key words: *economy of culture, cultural-creative sector, value-added, cultural employment, cultural consumption expenditure, households’ cultural expenditure, publishing turnover in manufacturing, econometric model, ANOVA analysis.*

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PARETO OPTIMALITY OF THE CONTRACTS AND JOB SATISFACTION

In this paper, we will analyze the impact of qualifications and wage increases on the job satisfaction. First we will propose a generalization of the Clark (1996) and Clark and Oswald (1996) model, using an increasing function in wage and wage increase. We will obtain that the wages are strictly increasing and the wage increases are decreasing in time. The greater the wage level from the previous period is, the greater the reference standard is. The agent uses this standard to evaluate the job satisfaction. The agent will obtain satisfaction from a wage increase only if his effort level is greater than before.

In the second section we will use the Principal-Agent model. We suppose that in asymmetric information there are two types of agents or the Agent can choose between two different levels of the effort. We have determined the characteristic of the optimal contract for both types, when the utility function depends on a reference level. The analyze results refers at: the effort levels for both types of the agents, at the utilities and at the Pareto optimality of the contracts.

Key words: *utility, job satisfaction, wages, wages increase, preferences, loss aversion.*

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STATISTICAL TESTS TO EVALUATE THE LEVEL OF MIGRATION INTENTION FROM VILLAGE TO TOWN IN ROMANIA

This paper presents the results of a survey conducted in Romania in 2007 on a sample of 760 employees from the rural area in order to realize the profile of the labour force which intends to migrate from village to town. The target population comprised population aged between 16 to 64 years and from the main regions of Romania. Analyzing the answers the main conclusion is that there is a high interest of the labour force for migration from village to town. Rural employees consider that the town offers more facilities for work than the village. The main destination for the labour wanting to migrate is Bucharest, the Romanian capital because of many possibilities to find a job in qualified and non qualified domains.

Key words: migration, labour force, opinion poll, correlation, multiple regression model, variable, χ^2 test, questionnaire, region.

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INDEPENDENCE DEGREE AND THE ENERGY EFFICIENCY GROWTH AT THE LEVEL OF THE NATIONAL ENERGY SYSTEM

The energy is one of the most acute problems` of the modern world. Practically speaking, the development of a country can't be made without considering its resources of energy. Romania, as all as the European countries, has a series of problems pertinent to the energy insurance of the economy and population.

The paper is presenting the world tendencies in the energy sector analysis, the current aspects and the development perspectives of the Romanian energy system, the energy production, the insurance of a legislative frame in this field, the development of the energy system in the context of economic and ecological settlements, the degree of energy independence, the energy efficiency growth and the current state of the energy infrastructure.

Key words: energy system, legislative frame, settlement, energy independence, energy efficiency, energy infrastructure.

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A FUZZY APPROACH TO DIFFERENT PUBLIC ACQUISITIONS PROCEDURES

Public acquisitions procedures are a set of rules and regulations that are meant to insure that public funds are utilised in an efficient and legal manner. These procedures, like any other regulations, are susceptible to various manipulations in order to insure that a certain outcome is predetermined.

The way that a public auction procedure is put into practice can insure a certain predetermined outcome, also assuring that everything is perfectly legal. This is possible due to a flawed legal framework, which can at times fail to fulfil its inherent purpose.

Key words: *public auction, offer selection, services acquisition, fuzzy decision theory, fuzzy membership function.*

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A NEW UNSUPERVISED LEARNING SCHEME TO CLASSIFY DATA OF RELATIVE SMALL VOLUME

The aim of the present paper is to propose a new kind of approach in cluster analysis. Our attempt is based on group skeletons defined by a set of orthogonal and unitary eigen vectors (principal directions) of the sample covariance matrix. According to the well known result established by Karhunen and Loeve, a set of principal directions corresponds to the maximum variability of the “cloud” from metric point of view, as well as from informational point of view. Our developments impose a set of quite natural working assumptions on the true but unknown nature of the class system. The search process for the optimal clusters approximating the unknown classes towards getting homogenous groups, where the homogeneity is defined in terms of the “typicality” of components with respect to the current skeleton.

Keywords: *principal component analysis, unsupervised learning, cluster analysis, informational skeleton.*

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A NEW APPROACH OF THE RISK PROJECT FROM MANAGERIAL PERSPECTIVE

In the economical practice, risk managers in the Banks select the projects for financing based on a very precise analysis. One of the most used methods is SWOT analysis. This kind of selection firstly underlines the strength points and weakness points, from their performance point of view. There will be established points for each possible value of these criteria, in order to determine each project's scoring.

Starting with these criteria, the decisional space of risk managers can be delimited, inside of this estimated lending risks will be minimum. This decisional space can be mathematically described with combinatoric algebra, starting with the idea that performance indicators scores, risk scores etc. will be considered as simple components of a multi-dimensional vector.

In consequence, will construct an algebraic representation which together with the decisional space, will highlight SWOT method utility, from quality point of view, in the approach of risk types highlighted by Basel II.

Key words: *risk project, SWOT analysis, weakness points, strength points, customer, process, product, distribution, Basel II.*

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LOCATION AND NETWORKING: NEURAL NETWORK – BASED MODELS AND GEOGRAPHIC INFORMATION SYSTEMS

One of the latest developments of the location theory envisages the territorial networks, which are considered the most complex type of clusters (compared to pure agglomeration and industrial district), more and more researchers concentrating on the systemic approach of these networks and the possibilities to develop adequate models for their analysis. Networking is a key word in the recent debates on economic and social cohesion and regional policy, pointing out the need and advantages of integrating the corresponding actors (business firms (especially small and medium ones), banks, universities, research institutes, training centres, consulting firms, chambers of commerce, associations of producers, local public administration) in a coherent framework, which creates links, relations, exchanges between them and generate synergy effects. The Geographic Information Systems represent one of the most useful tools for analyzing the territorial networks. This paper discusses the territorial network concept in the larger context of location theories, pointing out new approaches in the framework created by network typology and new developments at European level. The possibilities to use the neural network-based models in order to study the territorial relationships are underlined by means of a feed-forward neural network with three fully interconnected layers proposed by Fischer (2006). The role of Geographic Information System (GIS) as one of the instruments that can provide valuable information in data analyses is also considered.

Key words: *territorial networks, network typology, neural networks, GIS.*

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MAJOR TRENDS IN THE DEVELOPMENT OF THE MARKETING INFORMATION SYSTEM

The development of a modern marketing information system using the systems of the unique data bases offers the possibility of stocking and using of an incredible volume of marketing information of numerical nature, text, graphic, sounds, voice and video images, simple and easy to access through automatic procedures delivered by the host systems of data bases administration (SGBD), locally or at distance.

***Key words:** marketing information system, internal and external environment, informational data flows.*

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CAPITAL STRUCTURE DETERMINANTS: A SECTORIAL ANALYSIS FOR THE ROMANIAN LISTED COMPANIES

This study analyses the differences in financing policies for the Romanian listed companies taking into account the economic sectors. They are financing their assets, in this order, on equity, commercial debt and, finally, on financial debt. However, there are some differences between sectors and between book and market values. Concerning the determinants of capital structure, analysed through OLS regression, the four variables used in the model (tangible assets, size, profitability and market-to-book ratio) are significant. Moreover, the relationship between capital structure and the firm profitability for the Romanian listed shares for the period 1997-2005 was analysed through Granger (1969). Capital structure does not Granger cause financial returns and the hypothesis that financial returns does not Granger cause capital structure can not be rejected.

***Key words:** capital structure, performances, industry analysis, signalling theory, pecking order theory, Romania.*

JEL code: G32 – Financing policy, capital and ownership structure

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INFERENCE OF THE ATKINSON INDEX WITH ILLUSTRATION ON ROMANIAN REAL ESTATE MARKET

This paper investigates the Atkinson index, one of the several well known inequality measures, from a statistical point of view. In what follows, we develop statistical inference for the Atkinson index, construct empirical estimators for the index, both in the parametric and nonparametric case. In addition to proving asymptotic normality for the theory, we develop a nonparametric bootstrap theory, as an alternative to the asymptotic theory and present some of the advantages of this method. The last section presents a case study of market fluctuation in the prices of real estate land over a period of two years in Bucharest city and its county.

Keywords: *Economic inequality, Atkinson index, asymptotic normality.*

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EJB COMPONENTS FROM ORACLE PLATFORM IN WEB APPLICATIONS

Oracle platform has been enriched in the past few years with many components needed for relative easiest building of some solid applications over the Web technology. Oracle JDeveloper 10g is a development environment with end-to-end support for modeling, developing, debugging, and deploying e-business applications and Web services based on Service Oriented Application. It allows developers to build Java 2 Enterprise Edition - J2EE applications and Web services either from scratch or by using a J2EE framework. JDeveloper provides a comprehensive set of integrated tools to support the complete development life-cycle: wizards, editors, visual design tools, drag and drop data binding to user interfaces, and deployment tools to create high-quality, standard J2EE components. JDeveloper also provides a public Extension SDK to extend and customize the development environment and to seamlessly integrate with external products.

Key words: *Database, Java Platform, Web technology, Oracle products.*

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LEVERAGE VERSUS PROFITABILITY: CASE STUDY FOR IT COMMERCIAL COMPANIES

This paper focuses on analyzing the correlation between the financial risk and the economical profitability. Is there a maximum point of leverage out of which a company faces the danger of decreasing its profitability? If yes, can it be quantified? If not, can we at least make an empirical assumption regarding the leverage breaking point under which the profitability decreases? A database of 50 IT commercial companies will be valorized in terms of financial indicators used in order to test statistically the correlation between the two variables.

Key-words: financial leverage, corporate governance; profitability.
JEL Classification Numbers: G21, G30, G33

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TESTING THE EFFICIENCY OF MARKOWITZ MODEL ON BUCHAREST STOCK EXCHANGE

Our paper has as point of start the modern portfolio theory created by Harry Markowitz, who earned the Nobel Prize in Economics for his theory. The main aim of the project is to test the efficiency of using Markowitz Model on Bucharest Stock Exchange. In doing so, we have used a complex approach that puts together methods from portfolio management, statistics, computer programming, database design and mathematics. For achieving our objective, we have built a computer program that can apply the Markowitz Mean-Variance model hundreds of times per second on real data extracted from Bucharest Stock Exchange. Using the results of many thousands of such simulations, we have then analysed them statistically and discovered a way to optimize the input parameters of the model in order to increase the average return of the generated minimum risk portfolios and reduce the risk even further than the classic model does.

Key words: Markowitz Portfolio Theory, risk, diversification, return, [efficient](#) frontier, portfolio selection, minimum variance portfolio.

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ROMANIAN [GREEN CERTIFICATES MARKET](#)

*In Romania it operates a market of green certificates from the second part of 2005. The market of green certificates is based in Romania on **Quota Obligation System** – a mechanism used to promote the production of electricity from renewable energy sources by means of the acquisition by the suppliers of a specified quota of electricity produces from renewable energy sources in order to sell it to their consumers. The aim of this article is to analyze the evolution of amount of green certificates transitioned on this market in Romania so far.*

Key words: green certificates, pollution rights, OPCOM.

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THE PRINCIPLES OF AN EVOLUTIONARY ALGORITHM FOR NON-LINEAR TRANSPORTATION PROBLEM

This paper presents the three-dimensional transport problem, the model with double sum and the non-linear objective function in which the cost depends of the quantity that is conveyed. Usually, the hypothesis more likely found in reality is the functional relation between cost and quantity as follows: $c = \alpha - \beta \cdot x$, where α is transport unit price and β is coefficient applied with quantity's variation. The difficulty of resolving such a transportation problem comes from the objective function nature and its dimension. This paper describes the theoretical preliminaries of the problem, a brief overview of evolutionary algorithms and the principles for an evolutionary algorithm which searches the optimum only for the given three-dimensional transport problem.

Keywords: *Non-linear transportation problem. Evolutionary algorithm.*

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BAYESIAN HIERARCHICAL MODELING: AN APPROACH FOR DECISION FUNCTIONALS ELICITATION

This article is conceived as a general synthetic description of what is meant by Bayesian inference and especially Bayesian Hierarchical Modeling. The author tries to offer a condensed mathematical account of what is usually expatiated on hundreds of pages. This review is intended to be a conceptual reference for those who are familiar with Bayesian concepts, but in no way for beginners.

The article winds up with a Bayesian network model for parametric individual's decision functionals elicitation. The author's cRubi software designed for inference and analysis of personal attitudes towards risk is also presented.

Key words: *Bayesian Inference, Hierarchical Networks, Decisional Functionals, Logit Model, cRubi.*