EKONOMICKÁ UNIVERZITA V BRATISLAVE
FAKULTA HOSPODÁRSKEJ INFORMATIKY

UNIVERSITY OF ECONOMICS IN BRATISLAVA
FACULTY OF ECONOMIC INFORMATICS

Applied **I**nformatics **E**conometrics **S**tatistics **A**ccounting

ZBORNÍK

13. medzinárodná vedecká konferencia
„AIESA – BUDOVANIE SPOLOČNOSTI ZALOŽENEJ NA VEDOMOSTIACH"

v rámci osláv 70. výročia založenia Ekonomickej univerzity v Bratislave
pod záštitou rektora Ekonomickej univerzity v Bratislave
dr.h.c. prof. Ing. Rudolfa Siváka, PhD.

PROCEEDINGS

13th International Scientific Conference
„AIESA – BUILDING OF SOCIETY BASED ON KNOWLEDGE"

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University of Economics is held under patronage
of rector of University of Economics in Bratislava
Dr. h. c. prof. Ing. Rudolf Sivák, PhD.

**20. – 21. Máj 2010 * 20th – 21st May 2010
Bratislava**

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Plenárne rokovanie

Plenary Session

General Efficiency Conditions of Equilibrium in the Network Industries Market

In this paper we will deal with the analysis of the model of consumer's behaviour on the net branch market and with questions of efficiency of this specific market. Typical attribute of the net branch balance models is some isolation of the market on which net branch products are for the consumer mostly unsubstituted. Because of that the usefulness which the consumer feels by using them we can quantify in a specific way. In essence it is about such presentation of the usefulness function when the net branch product is sensed as goods with independent and scientifically defined usefulness function. Other goods are sensed as a consumption of the calculated one goods with a normalized unitary price.

Surplus of the consumer or of the producer as a classic categories of the microeconomic analysis are very effectively used by the description of the consumer and producer behaviour on the product and services market. These categories enable competently explain intuitive tendencies of mostly consumers by the acceptation of the decisions about creation their own consumer strategy by the changing parameters of the market surroundings which are in this type of analysis mostly the prices.

prof. Ing. Michal Fendek, PhD., dekan, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave

Developing a Data-Mart for Future Trades

A data warehouse provides historical and actual data to support the decision making process of the middle and upper management. First there will be a short introduction to the concept of data warehousing. Next there is an overall view of the data warehouse architecture and terminology. Before we begin to discuss an actual example of a small data warehouse, called data mart, I will point out the application field of data warehousing. Our example will be a data mart for future trades. After we get a general idea of how the trading of financial futures contracts works, we will carry out an information requirements analysis for the data mart 'future trades'. The last step will be the development and conception of the data mart. I will provide some examples of reports based on the designed data mart, which will be discussed.

Dipl.-Ing. (FH) Mathias Fuchs, MSc., Verwaltungs und Privat-bank Liechtenstein

Benchmarks for Commercial Linear and Mixed Integer Programming Solvers

The paper informs about current optimization systems for solving linear and mixed integer optimization problems and brings their brief characteristics. The latest versions of commercial LP and MIP solvers are tested with respect to their computational performance (speed) and accuracy. We compared the following solvers that are among the top solvers for the mentioned class of problems at all: CPLEX 12.1, XPRESS 20.0, GUROBI 2.1 and LINGO 12.0. The solvers are tested on the set of benchmark cases from the MIPLIB 3.0 and NETLIB libraries and on several other original problems. The results give an interesting comparison of performance of current LP and MIP solvers. Most of the mentioned solvers can be used for academic purposes and for research without any limitations on size of analyzed problems free of charge.

prof. Ing. Josef Jablonský, CSc., *Katedra ekonometrie, Fakulta informatiky a statistiky, Vysoká škola ekonomická Praha*

The Position of an Actuary in the Insurance Company and its Change due to the Implementation of Solvency II

The role of Responsible Actuary of an insurance company is now established in Slovakia and is essential in a world where many tasks are interlinked, in particular in relation to expressing an opinion on the adequacy of premium rates. In the past the Responsible Actuary took on the role of risk manager in life insurance, accident insurance and non-life insurance. The components, however, of modern insurance products have more in common with the sophisticated investment instruments of banks and this traditional role is no longer enough. The need has arisen for the Responsible Actuary to understand more how the assets are valued. This function includes in itself the ability to understand and comment on the insurer's investment strategy in respect either of its whole business or particular insurance products. The role of the Responsible Actuary in the process of Asset-Liability Management (ALM) is not recognized everywhere, despite being necessary in order adequately to price insurance products. The split of roles under the Solvency II regime will resolve these questions, as the current roles of the Responsible Actuary will be split between the actuary and the risk manager. The role of the risk manager will be to quantify the risks to which the insurer is exposed and express this in terms of an amount of required capital.

Ing. Mária Kamenárová, *Slovenská spoločnosť aktuárov*

A Structural CVAR Model of the Czech Republic – An Economic Interpretation

This paper is a part of research supported by the Czech Science Foundation (GA CR) under grant no. 402/08/1015. The paper presents a long-run structural Cointegrated *Vector* Autoregressive Model (CVAR) for the Czech Republic by J. Hančlová & M. Macháček (2009) and discusses its theoretical background and empirical implications. The model under discussion addresses five long-run open-economy equilibrium relationships implied by economic theories (purchasing power parity, domestic and international Fisher effects, money demand and international output comovement) and corresponding short-run dynamics of macroeconomic time-series. The paper provides comments on the results of testing of the model over the period of 1996 – 2009 and interprets these results in terms of theory.

doc. Ing. Martin Macháček, PhD., *Ekonomická fakulta VŠB-TU Ostrava*

Neural Networks as a Tool for Bankruptcy Prediction

Neural networks constitute a modern and popular tool used for the modelling, classification and programming of socio-economic processes. The first part of the paper presents a synthetic characterisation of neural networks, their architecture and manner of learning. Further down the paper considers typical examples of applying artificial neural networks in order to predict the bankruptcy of American and Polish companies. Next, examples are presented of the most advanced research on predicting bankruptcy in the Polish

economy. The paper ends with a formulation of the assets and drawbacks of neural networks as a tool used for predicting the bankruptcy of companies.

prof. dr. hab. Józef Pociecha, *Cracow University of Economics*

1. sekcia

1st Section

Informačné technológie a informačné systémy – podpora informačnej spoločnosti

Informatics technologies and informatics systems – maintenance of informatics society

Integration of Municipalities in Context of Informatization Concept in Local Municipalities

In the last 15 years we are part of reforms regarding local municipalities. One of the first reform was about decentralization of central government into a local government. The reform performed nowadays is modernization of local municipalities which part is also informatization. This effort was accepted in government document named "*Informatization concept in local municipalities*". Today's approach in public administration is to implement concepts of "new public management". These concepts put citizens of municipality into same level as customer of private enterprise. Such approach claims for integration between municipalities so the customer can be served the best way. This paper will analyze how this approach is reflexed in nowadays projects realized on base of mentioned government document.

Ing. Igor Bandurič, *Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Various Aspects of Knowledge Induction Parallelization

Among other factors of practical implementation of knowledge discovery systems, scalability is undoubtedly one of the most essential issues. This is well understood even though this aspect may not attract as much attention of theoretical research as does its complement, the functional basis that produces results (the algorithm). In the paper we interpret parallelization as a way of reducing the time complexity of learning from a database of examples as we emphasize the need for scalability of servicing computer system. The principles are demonstrated mainly on the top down induction of decision trees method. The paper hints at the weak points in the practical application of parallelization. We analyse the problem of efficiency of parallel algorithms as a subject to inherent overhead expenses related to task and data planning, management, distribution and results combination. In particular, the paper addresses the issues of task separability and integrability.

Ing. Kamil Krauspe, *Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Authorized Information System and the Expert Activity

The expert activity and expert position in the Slovak Republic are regulated by enactment, what modifies experts, interpreters and translators activities. The expert activity is by this law defined as a high professional activity. The Ministry of Justice of the Slovak Republic supervises expert activity operation. Its automated information system JASPI is intended for the public. The aim is to increase legal awareness among citizens. The experts information system is used for collecting, maintaining, processing and providing information. This paper deals with information systems, what make finding of information about experts and their work easier. It is based on information provided by the Ministry of Justice, IVSC and TEGoVA.

Ing. Veronika Littvová, *Katedra podnikovohospodárska, Fakulta podnikového manažmentu Ekonomická univerzita v Bratislave*

Virtual Regional Knowledge Management Platform for the Sustainable Development

The article intends to present the achievements of the research Romanian project "Knowledge management architecture for supporting the design of the sustainable regional strategy". The main goal of the project is to improve the regional knowledge management, using a virtual framework for the design of the regional development strategy. The innovation introduced by this approach consists in the integration of the regional actors' views, in order to develop a realistic regional development strategy, on a scientific and democratic base. This approach focuses on the development of a regional knowledge base for the design of the sustainable strategy, providing open access for the regional stakeholders, as contributors and beneficiaries of the various knowledge resources. The virtual environment facilitates the regional knowledge management and consensus building related to the regional strategy development.

prof. dr. Mihaela Mureşan, *„Dimitrie Cantemir" Christian University, Bucharest, Romania*

Digital Integration and Risks of Digital Exclusion

The topic of this paper is to define and underline some future problems in information society and in knowledge-based society like the possibility and risks of exclusion specific groups of population. Our attention is playing to digital integration, to e-inclusion, to e-accessibility for specific groups of population like people with disabilities, older people and others. This is the actual stategic line of European Union and also Slovak Republic. This specific groups of population also need to expand their competences, skills and knowledges for using information and communication technology (ICT) to achieve a better life. They need access to Internet and WWW pages and skills to using Internet, on-line services, e-mail, e-bussiness, e-banking, e-learning, e-government and other. The specific needs of persons with disabilities need to be considered. Content on Internet can be adapted to any type of cognitive, sensorial or physical disability. Access to telecommunications and broadcast services for disabled and older people is also very important role in the EU and also Slovakia.

Ing. Anna Ondrejková, *Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Artificial Intelligence in Business Processes

Artificial Intelligence found it's use in economic processes of the company. One of the best known use of artificial intelligence is to identify a segment of potential customers. However, can artificial intelligence be used to do other, equally if not more important processes in the company? My contribution deals with the use of artificial intelligence in the logistics operations of the company. It seeks to determine whether it is possible to entrust the following important activities in the hands of a computer.

Ing. Ján Pittner, *Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky*
Ekonomická univerzita v Bratislave

Knowledge Modelling in Public Administration

A Knowledge Economy of European Union has impact on whole society and leads to various changes in Public Sector too. It is necessary to adapt the Public Sector to new conditions and new tasks in the society. The contribution watches the Public Administration tasks, makes decomposition of tasks following the Methodology Common KADS, using the Template Knowledge Models and sketches the possibility of usage the latest Information Technologies based on Computerized knowledge processing for Public Administration. It gives a good assumption to build some knowledge ontologies in Public Administration for solving various tasks (in social section, environment section, educational system etc.) to help solve life situations of citizens.

RNDr. Eva Rakovská, *Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky*
Ekonomická univerzita v Bratislave

Selection of an Appropriate Long-term Business Partner for an IT Solution

The initialization phase of a project consist of a definition of the project scope (WHAT), a definition of a project organization (WHO) and a budget approval process (HOW). A selection of an integration partner, as a part of the initialization phase, has two mainly goals: to find a partner, who delivers a desired solution in the required time, quality and budget and to find a partner who can operate and extend the IT solution for a time period defined in the project scope. The stability of the integration partner plays a key role for a long-term cooperation. In this paper we describe main information categories and their purpose. Selected areas are transferred into form of a questionnaire, which has to be filled out by an integration partner and is a part of the Request for proposal. The gathering of this information allow a selection of a partner, who can offer a long term cooperation and additionally lower the risk of bankruptcy of the implementation partner after the project has been finished.

Ing. Mgr. Branislav Siarsky, *Katedra informačných technológií Fakulta manažmentu*
Univerzita Komenského

Transformation Organization and Enterprise to E-business.

Presently the rate of growth of electronic trade depends on the level of technological advancement of the particular country, its territorial location, the level of entrepreneurs and particular users of electronic media. My report is focused on the possibilities to use the internet for commercial purposes, especially in the area of e-business. The first part deals with the specifications of basic functions of the Internet and a description of the basic e-business division. In next part deals with tools designed for breaking through on the market, or reasons for failure in case of their incorrect implementation. The conclusion of my report deals with strategic goals of development of electronic trade in Slovakia and I deal with market research in the area of electronic business.

Ing. Mária Szivósová, Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky
Ekonomická univerzita v Bratislave

Wireless Networks Security

My report is focused at the security of wireless networks (WIFI) because nowadays WIFI is rapidly expanding thanks to laptops and netbooks. Many of us do not even know what wireless security is and whether it is necessary to create a secure wireless network. Therefore, I have decided to follow the guidelines and procedures that are available on the Internet. Software and hardware tools that I have used are listed in the contribution, as well as the results I have gained. The aim of this report is to inform the public about the dangers of poorly secured wireless networks and how they can be exploited with only a basic knowledge of computers. I would also like to highlight the consequences of poor security because most users use default settings for access points (routers).

Ing. Marián Šedivý, Katedra aplikovanej informatiky, Fakulta hospodárskej informatiky
Ekonomická univerzita v Bratislave

Qualified Electronic Signature and Informatization Process in Slovakia

Qualified electronic signature is basic security element for authentication in citizen vs. government communication. There are many critical steps in informatization process in any country. Widely used authentication element (like qualified electronic signature) is one of the most important of them. This article is about pro-and-con in Slovak legislation of qualified electronic signature and about the need for change. In article there are shown possibilities how to make this important authentication element more efficient in Slovak environment.

Mgr. Ing. Michal Šefara, Fakulta managementu Univerzita Komenského

Assessing of the possibility of reversibility of dynamical information systems and processes

Terms like an ergodic problem and formulation of Boltzmann's ergodic hypotesis, recurrent Poincare conjecture in the context of entropy and evolution of huge statistical systems what is demostrating in the evolution of non-equilibrium and unstable dynamical systems are connected not only with the field of long-term stability but also with the reflections about reversibility of dynamical information systems and processes.

RNDr. Ľubomír Turňa, CSc., Katedra aplikovanej informatiky, Fakulta hospodárskej
informatiky Ekonomická univerzita v Bratislave

2. sekcia

2nd Section

Vývojové trendy účtovníctva a audítorstva
v podmienkach Európskej únie

Evolutional trends of accounting and auditing in
European union countries

The View of Accounting Law Slovak and Hungary

There are interesting differences between Accounting law of Slovak Republic and Accounting law of Hungary. The characteristic of the current period on the field of accounting is harmonization and to remove causes of international differences. Authors quote questions concerning the structure, contents and extent the two laws. The article shows some more interesting differences.

Ing. Mgr. Renáta Antalová, PhD., Ing. Vladimír Surový, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Financial Statements under the International Public Sector Accounting Standards (IPSAS)

Comparability of information from the Financial Statements is the objective of the international harmonization of Accounting. The Public Sector Accounting harmonization plays a special role in the process. *The International Public Sector Accounting Standard - IPSAS* published by the International Federation of Accountants - IFAC and are prepared by the International Public Sector Accounting Standards Board – IPSASB are the key tools of the process. The purpose of the process is to generate programs focused on enhancement of financial management and responsibility including development of accounting standards, to improve quality and comparability of financial reporting and to support their employability worldwide.

Ing. Dana Droppová, *Stopercentná daňová, kom. spol., L. Mikuláš*

Environmental Aspects of Accounting

State of the environment and its importance for society is now becoming acute political and economic problem. There is a connection between the economic and environmental factors in all the phases of the reproductive process. Considering the relatedness brings significant information, which has become essential for keeping the competitiveness and the sustainable development. Important resource of information about the environmental protection is environmental accounting. Environmental accounting is a new concept which is being developed on the macro-level, i.e. on the level of the national accounts' systems, and at the same time on the micro-level, i.e. on the level of the business accounting. Growing criticism of the accounting system's incapability to globally capture and evaluate the influence of activities connected to the environment was, in both cases, the impulse for the establishment of the ecological accounting. The aim of the article is to analyse environmental aspects of accounting and potential utilization of environmental accounting in management of the enterprise or on the macroeconomic level.

Ing. Veronika Dubielová, Ing. Katarína Zeleníková, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Theory of Accounting in Practice

Accounting as a discipline, a product of human practice, is not theoretically described as an exact system of several definitions and rules and the relations among them. The in-depth knowledge of accounting theory therefore enable a more demanding approach to solving methodological issues in practice which are connected with changes in the design of accounting, mainly the application of IAS/IFRS, which relies on the variability of problem-solving in accountancy.

Ing. Renáta Feketeová, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Selected Cases of the Accounting of Non-profit Organizations in the Czech Republic

The specific rules for the accounting of non-profit organizations are concerned with two kinds of organizations: those directly linked to the state budget and those without direct ties to the state budget – i.e. non-governmental NPOs. Both kinds of non-profit organizations encounter problems in complying with the accounting procedures in case of their business activities. The paper deals with the accounting of non-profit organizations with collateral economic activities.

Ing. Radmila Herzánová, PhD., *Moravská vysoká škola Olomouc*

Subjectivism in the Choice of Balance Sheet Policy and its Relation to Balance Sheet Frauds

The aim of paper is to present various alternative approaches in selection of accounting policies, which is a combination of determined goals, and its purported (conservative or aggressive) impact on information embedded within financial statements. There is only a thin border line between aggressive accounting policies and frauds – though their differentiation is important mainly for reason that not all aggressive accounting policies are necessary linked to illegal activities and/or failure in application of generally accepted accounting principles. It follows, that in order to assess theses differences, one had to know fundamental characteristics of fraud and its classification – especially in according with their description provided by international associations IFAC and ACFE. These topic are described in the second part of the paper.

doc. Ing. Miloš Tumpach, PhD., Ing. Stanislava Husárová, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Shadow Accounting

In some accounting models, realised gains or losses on an insurer's assets have a direct effect on the measurement of some or all of its insurance liabilities, related deferred acquisition costs. An insurer is permitted, but not required, to change its accounting policies so that a recognised but unrealised gain or loss on an asset affects those measurements in the

same way that a realised gain or loss does. The related adjustment to the insurance liability (or deferred acquisition costs or intangible assets) shall be recognised in equity if, and only if, the unrealised gains or losses are recognised directly in equity. This practice is described as "shadow accounting" in accordance with the IFRSs.

doc. Ing. Mgr. Zuzana Juhászová, PhD., Ing. Daša Mokošová, PhD., Ing. Miloš Sklenka, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Sequence of Work of an Internal Auditor in the Field of Stamps and Vouchers of a Business Entity

An internal auditor needs to prepare for each control process. The internal auditor documents the sequence of work at the internal audit: the planning, programming and the control process itself. In the control process the efficiency of the accounting and the internal control system, for example a control of stamps and vouchers, is being analysed, evaluated and monitored. In the final evaluation the internal auditor consults the results of audit with involved persons and writes an overall statement that incorporates observed shortcomings, as well as advice and possible solutions on increasing safety and improving the present situation in the field of stamps and vouchers of a business entity. Finally, the internal auditor ensures that appropriate action is taken following the audit.

Ing. Sylvia Kastlerová, PhD., Ing. Mária Vépyová, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Equity and the Liabilities – the Subject of Presentation in the Balance Sheet of Budgetary Organizations, Allowance Organizations and Municipalities

The information about the equity and the liabilities are presented on the side of equity and liabilities in the balance sheet of budgetary organizations, allowance organizations and municipalities. The application of new accounting principles in accounting of budgetary organizations, allowance organizations and municipalities implicates the changes of content and structure of the equity and the liabilities in the present in Slovak Republic. The aim of this conference paper is to analyse the information about the equity and the liabilities, which are presented in the balance sheet by the quantitative and qualitative analysis.

Ing. Alena Kordošová, PhD., doc. Ing. Antónia Kovalčíková, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Assets – the Subject of Presentation in the Balance Sheet of Budgetary Organizations, Allowance Organizations and Municipalities

Financial statements are a structured presentation of the facts that are the subject of accounting, provided to persons who use this information. In the article we focus on information about assets that are presented in the balance sheet of budgetary organizations, allowance organizations and municipalities. We present there knowledge from comparison of balance sheet as a source of information about assets in current developments of accounting

of these entities in the Slovak Republic in the process of harmonization with International Public Sector Accounting Standards.

doc. Ing. Antónia Kovalčíková, PhD., *Ing. Alena Kordošová, PhD.,* *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Valuation of Plant, Property and Equipment in Public Sector Accounting

This article is focused on selected public sector entities in Slovak Republic: budgetary and allowance organizations, municipalities and higher territorial units. Non-current assets are assets whose useful life exceeds one year and whose valuation exceed amount specified in the special legislation - Act of Income. During years 1993 to 2010 the specified amount changed several times. All expected risks, losses, and impairment relating to assets and liabilities, which are known as of the reporting date, must be reflected in financial statement. Depreciation represents permanent impairment of assets. Value adjustments shall be created in the event of a temporary impairment of assets. These value adjustments shall be reversed if there is no longer a risk for which they have been created. This article describes specifics in valuation of property, plant and equipment for public sector accounting during years 1993 to 2010.

Ing. Zuzana Krišková, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Events after the Reporting Date in the Context of International Public Sector Accounting Standards

Events after the reporting date belong to the important sphere of the public sector accounting. The article deals with the basis provisions of IPSAS 14 − Events after the reporting date. The objective of this Standard is to prescribe when an entity should adjust its financial statements for events after the reporting date and the disclosures that an entity should give about the date when the financial statements were authorized for issue and about events after the reporting date. The Standard also requires that an entity should not prepare its financial statements on a going concern basis if events after the reporting date indicate that the going concern assumption is not appropriate.

Ing. Marianna Kršeková, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Influence of Purchasing of the Assets and Depreciation of the Fixed Assets on the Components of Financial Statements

The companies consider various alternative solutions in the area of purchasing and depreciating of fixed assets and they regard also financial and accounting point of view during this process. This paper illustrates how particular solution influences the components of financial statements through case studies that simulate real conditions.

Ing. Zuzana Kubaščíková, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Earnings as the Predictor of Future Cash Flows

Earnings as the generally accepted summary measure of the firm performance reflects not only the performance for the current period, but its beneficial role for users of financial information, particularly for investors is in the ability to forecast the future cash flows better than the current cash flows do. This is given by the important component of earnings - accruals, which by themselves are predictors of future cash flows.

Ing. Alena Kucková, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Accounting Procedures for Entrepreneurs - Non-current Receivables and Liabilities (complex view)

The article is focusing on the partial problem of accounting for entrepreneurs – non-current receivables and liabilities accounting. The principle of fair and true view requires applying the present value on the non-current receivables and liabilities. In our opinion, this field of accounting is not sufficiently processed in the Slovak accounting legislation for entrepreneurs (the entrepreneur's accounting deals only with applying the present value in the connection with non-current receivables).
In this article we try to describe our view and clarify the essence of accounting of not only non-current receivables, but liabilities as well. At the same time, we focus on some problematical aspects of Slovak legislation for these non-current items too.

Ing. František Maděra, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Fair Value of Intangible Assets in Context IFRS

The objective of this conference papers is to define the fair value of intangible assets in context IFRS, valuation techniques and the process of assessing the fair value of intangible assets. The generally accepted valuation methodologies for the purposes of assessing the fair value of intangible assets are market methods, income methods and cost-based methods. The process of assessing the fair value of intangible assets include a number of steps enabling the valuer to make an assessment of the fair value of the intangible assets.

doc. Ing. Katarína Máziková, PhD., Ing. Tímea Göghová, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The View of Act on Accounting of Slovakia and Serbia

There are interesting differences between Accounting law of Slovak Republic and Accounting law and audit of Serbia. The characteristic of the current period on the field of

accounting is harmonization and to remove causes of international differences. Authors quote questions concerning the structure, contents and extent the two laws. The article shows some more interesting differences.

Ing. Vladimír Surový, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*
Dr Vladan Pavlović, *docent, Megatrend Univerzitet, Novi Beograd, Srbija*

Component Depreciation Impact on Profit

The paper deals with component method of depreciation of property, which results from gradual harmonization of Czech accounting legislation and International accounting standards. It is an analysis of impact of this depreciation's method on the profit and simultaneously there is also emphasized the attachment to the Law of Income Tax.

prof. Ing. Viola Šebestíková, CSc., Ing. Veronika Křelinová, *Katedra účetnictví, Ekonomická fakulta, VŠB-TU Ostrava*

Measurement of Liabilities in IAS 37

The overall measurement objective of liabilities is to measure the amount that the accounting entity would rationally pay at the end of the reporting period to be relieved of the obligation. There are many alternatives that lead to estimation of the amount needed to fulfill the obligation. The amendment of IAS 37 – Provision, contingent liabilities and contingent assets that is published for public comment as an exposure draft till 12. 4. 2010, brings new approaches on measurement of liabilities. We present the nature of proposed changes in IAS 37 in the contribution.

prof. Ing. Anna Šlosárová, PhD., *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Schemes of Employee Benefits – Advantages and Disadvantages from the Employers' and Employees' Point of View

The percentage of pensioners and public pension expenditure has heavily increased in recent years, especially because of an increasing demand for pensions. Since a number of aging people has raised and is predicted that it would be much more in the following 30 years, it is a lot significant to handle about this issue. In some countries, there is a thread of bankruptcy caused by that increasing demand for state pensions and therefore, most governments are trying to encourage a private funding of pensions. However there are still plans (both obliged and optional) based on public pension funding. According to IAS 19 – Employee benefits, there are two major pension schemes – defined contribution pension schemes and defined benefit pension schemes. Both of them bring a different level of risk and certainty of pension costs and therefore one of them is becoming more popular among employers than the other one. In this paper I would like to examine the major differences between these two schemes and describe advantages as well as disadvantages towards employers and employees.

Ing. Mgr. Lucia Števková, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Guidelines on Accounting Policy for Small and Medium Enterprises in Bulgaria

Summary„The interest in this particular theme is due to the fact that 90 per cent of the companies in Bulgaria are small and medium enterprises (SME). The article is theoretically and practically oriented and the aim of the report is to reveal the tendency of the current accounting policy. Therefore the main goal is to make a differentiation of the enterprises (small and medium) on the basis of specific criteria, using statistical data, as well. The basic accounting principles are in conformity with the Law on Accountancy and MC –IAS.

Galina Todorova, *Bulgaria –University " Assen Zlatarov" Bourgas*

IFRS for SMEs - A New Challenge for Financial Reporting

In July 2009, IASB released IFRS for Small and Medium-sized Entites (SMEs) which can be designated as the most important event of 2009 in IFRS. The standard for SME is a result of a five-year development process and is intended to be used by more than 95 % of all companies. Expectations expressed by IASB are large. However, are entities that are in the scope of SME definition ready to use these accounting policies? And are individual countries ready to adopt IFRS for SMEs as obligatory accounting rules? Miscellaneous answers can be received to these questions. The paper introduces IFRS for SMEs as issued, analyses its benefits and deficiencies and provides a basic comparison with full IFRSs. The paper also contains an investigation of initial reactions of some countries following issuance of the standard, e.g. in Ireland and U.K. has started a discussion about a replacement of current UK and Irish GAAP by adopting the IFRS for SMEs.

Ing. Libor Vasek, PhD., *Katedra finančního účetnictví a auditingu, Vysoká škola ekonomická v Praze*

Ethics in the Thoughts of Ancient Philosophers

Ethics is the science of morality, moral consciousness and behavior of humans in everyday personal, social, political and economic life. Morality, a set of norms regulating human behavior, is the subject of ethics. And therefore, deal with ethics without regard to morality is unrealistic. History tells us that different interpretations of morality may be as much as the ethicists. Its foundations were laid at a time when mankind has neglected the "clean" nature of their relationship. This is already reflected in the ancient period. This era resulted in the definition of philosophy and ethics as new forms of rational relationship to a world and relationship of man to himself, which are the heart of business success in every profession even now.

Ing. Miroslava Vlkoláčková, *Katedra účtovníctva a audítorstva, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

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3. sekcia

3rd Section

Aplikácia štatistických a aktuárskych vied v sociálno-ekonomickej oblasti

Application of statistical and actuarial sciences in social-economic area

3. sekcia

3rd Section

Aplikácia štatistických a aktuárskych vied v sociálno-ekonomickej oblasti

Application of statistical and actuarial sciences in social-economic area

Using of DCF Models by the Creation of the Valuation Regresion Models of the Company's Market Value Determination

This paper deals with the opportunities of using the DCF models by the correct forecast of the explanatory constants to the regression model where the ratio coefficient of the company`s market value acts as a represented constant. We focus on the most known and frequently used constants – P/E, P/B, P/S. It is possible to use the statistical proved model, that describes the influence of the fundamental data, by the investment decision making, because we can identify the wrong appreciated shares at the market, whether underestimated or overestimated.

Ing. Katarína Belanová, PhD., Katedra financií, Národohospodárska fakulta Ekonomická univerzita v Bratislave

Arima Models in Use

The purpose of this paper is to survey and discuss teoretical information which are needed to create models of time series. Mostly we discuss ARIMA models and we clarify the essential characteristics of this model. At the end of this work we discuss the most commonly use of given ARIMA models.

Ing. Arne Cakl, Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave

Commercial Insurance Market

The article is concentrated on the Slovak insurance. The Slovak insurance is well-developed. As many as 22 commercial insurance companies, of this number 22 associated in the Association of Slovak Insurers, operated in the Slovak Republic until 31.12.2008. Development of insurance in the area of life insurance in recent years is more dynamic than in non-life insurance. The Slovak Republic is gradually getting closer to the European average on the insurance market, which is about 61 percent in favour of life insurance.

Ing. Barbora Drugdová, Katedra poisťovníctva, Národohospodárska fakulta Ekonomická univerzita v Bratislave

Modelling the Import of Goods and Services of the Slovak Republic

Import of goods and services reflects the level of purchasable inhabitants and its increase indicates higher consumption of inhabitants (higher demand for foreign goods and services). In so small and open economy such as Slovak economy is, import presents important macroeconomic indicator which should be watched very carefully and the knowing of its further development is important in order to choose correct actions by the state for supporting and growing of domestic economy. For these reasons we consider it important to analyse the determinants of the development of import of goods and services in order that the architects of economic policies are in possession of quantitative instruments while making

their decisions. The aim of this paper is to compare two different kinds of model tools: ARIMA models and error-correction models (ECM) and modelling the import of goods and services of the Slovak republic and generate prognosis of import.

Ing. Peter Ďurka, *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Sampling Survey. The Horvitz-Thompson Estimator (HTE)

Horvitz-Thompson estimator is unbiased under any method for which inclusion probabilities are known. Attention in this paper will be focused on the properties and construction HTE and confidence intervals based on the THE.

doc. Ing. Ľubica Hrnčiarová, PhD., *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Comparison of EU Countries on the Base of Chosen Indicators of Sustainable Development

The paper is divided into theoretical and application part. In the theoretical part we deal with the ways of weights stating of indicators using analysis of variability and structure of correlation matrix and with the description one of the multidimensional comparison methods – distance method from the fictitious object. In the application part we compare chosen EU countries on the base of following indicators of sustainable development - growth rate of real GDP per capita, net national income, total employment rate, general government debt, growth rate of labour productivity per hour worked, total fertility rate. We apply distance method from the fictitious object for these indicators in 22 EU countries in the year 2008.

Ing. Ľubica Hurbánková, PhD., *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Application of Cluster Analysis for Chosen Indikators of Sustainable Development

This paper deals with indicators of sustainable development pursued by most European Union countries. From 134 indicators, which are divided into 10 topics, I used some of that for the analysis of selected European Union countries using cluster analysis. Cluster analysis allowed to divide the country into clusters by their similarity, where related countries are in one cluster. By created clusters, I made a comparison of countries according to indicators wich entered into the analysis.

Ing. Zuzana Ilavská, *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Outliers - Problem and Solution

Outlier detection is a primary step in many data-mining applications. We present several methods for outlier detection, while distinguishing parametric vs. nonparametric procedures. In presence of outliers, special attention should be taken to assure the robustness of the used estimators. Outlier detection for data mining is often based on distance measures, clustering and spatial methods.

Ing. He Nguyen Dinh, *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Modelling the Optimal Number of Contracts with Berry - Esseen Aproximation

Efficient determination of the distribution of the total claim is one of the actuarial analysis. For this field we can use exact, approximate, recurrent procedures and simulation techniques. Each of these methods is specific and is also dependent on the type of distribution. After can use the results obtained for further analysis, particularly for the theory of ruin. The paper deals with a specific range of analysis - effect of approximate normal distribution in the context of modeling the optimal number of contracts to maintain the chosen level of premium with illustration of the model data.

Ing. Michal Páleš, *Katedra matematiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Methodology and Statistical Algorithms Used in the Process of Customer Segmentation

One of the most common data mining areas of application where we use clustering method as a part of descriptive modeling is customer segmentation. This article presents the segmentation methodology which can be used in various industries. Segmentation process uses various statistical algorithms. The Principal component analysis is being used here for reduction of dimensions (input variables). The components are later being used in clustering analysis. The decision trees as the final part of the methodology are being used for simplification of segmentation criteria. The output of the process is the split of customers into several homogenous groups. For these groups (segments) we can develop different strategies, products and use different communication channels in order to increase the customer satisfaction.

Ing. Marián Ponechal, *Dell s.r.o., Bratislava*

Nonlinear Model of Volatility for Mean Value of Pension Units of Growth Pension Funds in Slovakia

Submitted article deal with nonlinear models for level and volatility of weekly observations for mean value of pension units of Growth Pension Funds administered by six pension fund management companies within Second Pillar of Pension Insurance in Slovak Republic, during the period from March 23, 2005 till May 5, 2009. Time series has 238

observations. It was found out, that ARIMA(0,1,(2,7)) together with ARCH(3) model is good candidate to describe development of this time series.

doc. RNDr. Eva Rublíková, PhD., *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*
Ing. Jaroslav Brzák, *starosta, Obec Príbovce*

Comparison of Different Architectures of Hybrid ARIMA-ANN Models in Prediction of Aggregate Water Consumption

As it is known, hybrid prediction systems tends to outperform their single component alternatives, as component systems can complement each other, and obtain better prediction precision. Therefore it is beneficial to combine prediction systems with different properties and trade-offs, and obtain one superior prediction model. For this reason, hybridizing arima models and artificial neural networks can be of great benefit, as ARIMA models provide great performance when modelling linear relationships, while neural networks are superior in modelling nonlinear relationships. In this paper, five different architectures of hybrid ARIMA-ANN systems are suggested, and tested by meausring prediction accuracy using the dataset containig aggregate water consumption of Spain from period 1984 to 2007.

doc. RNDr. Eva Rublíková, PhD., Ing. Ján Šterba, *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*
Ing. Katarína Hiľovská, *Katedra bankovníctva a investovania, Ekonomická fakulta Technická univerzita Košice*

Child Poverty in Slovakia and the Czech Republic

The main goal is to assess child poverty and describe its relationships in its geographical and socio-economical context by analyzing the living conditions in households bringing up children. These social variables, the NUTS III regions, and the definition of a "household with a child or children" are all in accordance with applicable EU-SILC regulations of the European Commission.
For this analysis, methods of descriptive statistics, statistical inference and the graphical presentation of the results of multivariate descriptive statistical methods have been used.
This article describes the situation in which a household with more children becomes poorer, is in a worse social position, lives in worse dwellings without comfort, often has trouble to pay the bills, etc. The article is based on the comparison of the situation in Slovakia and the Czech Republic by data collected in the EU-SILC for the year 2007.

Ing. Ľubica Sipková, PhD., *Katedra štatistiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*
Ing. Iveta Stankovičová, PhD., *Katedra informačných systémov, Fakulta managementu Univerzita Komenského v Bratislave*

The Mathematical-statistical Models in Sickness Insurance

This paper deals with characteristic of sickness insurance in Europe and with the models that have a practical use in this kind of insurance. Because sickness insurance relates the risk coverage actuarial mathematics is important in this class of insurance. The authors of this subscription describe the mathematical-statistical models which consider a different insurance accident. The deterministic model is defined by sickness measure and in use commutation function so it is convenient for counting general policy conditions. The continuous models make allowance for individual types of risks between are critical illness particularly.

Mgr. Petra Škrovánková, PhD., doc. RNDr. Lea Škrovánková, PhD., *Katedra matematiky, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

4. sekcia

4th Section

Aplikácia modelov a metód operačného výskumu a ekonometrie v ekonomickom rozhodovaní

Application of operation research and econometric models and methods in economic decision making

Optimalization of Transport Network in Slovakia

Pre ekonomický rozvoj krajiny, prílev investícií ako aj pre podporu cestovného ruchu je dobre rozvinutá dopravná infraštruktúra nevyhnutnou súčasťou. Hlavné ťahy dopravnej siete na Slovensku ešte stále nie sú dobudované. Výstavba komunikácií uprednostňuje najmä cestné riešenia. Cieľom príspevku je navrhnúť reštrukturalizáciu dopravnej siete. Táto zmena si za cieľ kladie dve úlohy: budovanie (resp. rekonštrukciu) vybraných úsekov rýchlostných ciest a železničných tratí a nastavenie ekonomických parametrov tak, aby doprava spĺňala potrebné požiadavky: maximalizáciu rýchlosti a priepustnosti, minimalizáciu nákladov, priaznivý vplyv na životné prostredie, čo najvyššiu bezpečnosť a trvalú udržateľnosť.

Ing. Michal Feik, *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Role of Process Management in ČSN Norm

Currently the concept of process management is well-known and inflected in many falls. Companies are aware of the importance and the need for the use of process management in a dynamic and unstable economic environment. Application of process management becomes the present standard. This article aims to highlight the role of process management in the existing ISO standards.

doc. Ing. Josef Fiala, CSc., *rektor, Vysoká škola sociálně-správní Havířov*
Ing. Martin Kuhn, *Ekonomická fakulta VŠB-TU Ostrava*

Complex Modeling of Inventory Management in Reverse Logistics

Modeling of the entire process of the inventory management is a complex problem. It is not just 'purchased materials lot sizing or inventory costs minimalization but it is also planning, managing and controlling of the inventory in the manufacturing process and distribution. In reverse logistics this classic inventory management will be supplemented by the collection and disassembly of the returned products and storage materials from return Classic models of inventory management are insufficient but their principles as well theorems may help to create a complex inventory management model. One possibility to solve this model is simulation modeling which represents a useful tool for analyzing and optimizing of the various real-life systems.

Ing. Pavel Gežík, *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Problems of Data Envelopment Analysis Methods

Data Envelopment Analysis methods are these days used in many areas and applications to evaluate and rank units or alternatives not only in non-profit sector but also in industry and agriculture. DEA methods have some advantages compared to the traditional multi-criteria decision methods nevertheless they have also some drawbacks. In the presented

paper we focus on various problems which are connected with DEA methods. Special attention is given to the misspecification of the model used, which is demonstrated using simulation approach.

Ing. Martin Huska, evoline s r.o., Bratislava

Analysis of the Relationships between the Pairs of the Exchange Rates

The paper deals with the analysis of the relationships between the exchange rate USD/EUR and exchange rates of the individual national currencies of the Visegrad countries (Czech Republic, Hungary, Poland and Slovakia) against the euro. The analysis was done on daily data using the Granger causality concept. Although the long-run relationship was not found out in any case, several short-run relationships were identified to be statistically significant.

Ing. Michaela Chocholatá, PhD., *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Macroeconometric Modelling and VECM

In this paper we discuss a modelling strategy introduced by Garatt et al. This strategy provides a practical approach to incorporating long-run structural relationships, suggested by theories, in an unrestricted vector autoregressive model. This approach was used in the construction of small macroeconometric models of several countries. The comparison of results for different economies like the UK, Germany, Swiss, Czech Republic and Slovak Republic can give useful information about this interesting and relative new econometric technique.

Ing. Martin Lukáčik, PhD., *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

Methods of Regulation of Network Sectors

It is necessary to regulate the conduct of business, if the market fails. Most enterprises that are regulated conduct its business in the network industry. Not all companies in the network sector should be regulated, but only of those that have the character of natural monopoly. Economic theory defines natural monopoly as a situation when a monopoly supplier is able to satisfy the needs of a particular product consistently at a lower cost and better than a system of more competing suppliers could provide. Main goal of regulation is to impose conditions that are similar to those in a competitive market. Several theoretical conceptions may be used to set up regulated prices for the network sector products. These conceptions are the principal subject of our analysis in this paper.

Ing. Martina Mačičáková, *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Application of Quantitative Methods of Management of Small and Medium-sized Enterprises

Inventory management belongs to very attractive disciplines of operational research because the importance of inventory satisfies one of the basic functions of the firm. This paper deals with the retail organization operating on the European market with commodities of the textile industry. First we make a breakdown of the inventory by the ABCD analysis and we determine the optimum amount of inventory in the firm under the conditions of security and then under the conditions of uncertainty. The optimize inventory will be based on so-called bipolar cost structure. Accumulated stock is associated with considerable costs and risks for each company however the main motive for holding stock in the company is to satisfy the demands of customers. We exemplify that the effective size of stock should be in minimum quantity but on the other hand it must ensure sufficient instantaneous availability of supply to customers.

Ing. Petra Matějovská, Katedra podnikové ekonomiky, Ekonomická fakulta Technická univerzita v Liberci

Formulation of Regional Competitiveness Model by Using an econometric Approach

The paper deals with analysis of issues of regional competitiveness in economic theory and practice. Purpose of this paper is based on the knowledge of theoretical concepts and approaches of economic schools devoted to the issue of competitiveness, productivity and growth theories. The aim is to formulate the econometric model of regional competitiveness. At the theoretical level, paper identifies the basic sources and factors of regional competitiveness. The practical part is based on suggestion of basic explanatory variables needed for formulation of an econometric model of regional competitiveness.

Ing. Jan Nevima, PhD., Katedra matematických metod v ekonomice, Ekonomická fakulta, VŠB – TU Ostrava

Data Forecasts Using VAR Model

This article deals with analysis of the vector autoregressive model. Focussing on estimation and forecasting process of VAR models for a different sets of time series. The choice of the lag order can be based on information criteria (e.g. Akaike Criterion, Schwarz Criterion and Final Prediction Error) or on minimizing the forecast errors. For estimating and forecasting multivariate vector autoregressive (VAR) processes I will use Eviews software. I demonstrate VAR estimation and forecast by means of economic data.

Ing. Marek Oštrom, Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave

Critical Path Analysis and General Scheduling Theory

The paper shows fundamental notions of scheduling theory and shows that the classical CPM problem is a scheduling problem $P\infty|prec|C_{\max}$. Several linear programming formulations are given for this problem. These formulations allow more complex objective functions. It is shown that earliest beginning times and latest completion times of operations can be calculated as sequential calculation of minimums and maximums using monotone numbering of precedence digraph.

doc. RNDr. Stanislav Palúch, CSc., doc. RNDr. Štefan Peško, CSc., Fakulta riadenia a informatiky, Žilinská univerzita

Scheduling and Simulation

Nowadays manufacturers are facing rapid and fundamental changes in the ways business is done. Producers are looking for simulation systems increasing throughput and profit, reducing cycle time, improving due-date performance, etc. This paper discusses how simulation is used to design new manufacturing systems and to improve the performance of existing ones. While deterministic scheduling and simulation have often been seen as competing approaches for improving these systems, we will discuss four important roles for simulation when developing deterministic scheduling approaches. Topics to be discussed include: manufacturing issues addressed by simulation, simulation software for manufacturing applications, techniques for building valid and credible models, and statistical considerations.

Ing. Jana Patakyová, Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave

Modification of the Maximum Flow Problem on Location Model

In this paper, a modification of well known maximum flow problem is presented. Maximum flow problem analyzes the flow in system in which individual nodes (places) are connected by edge. The capacity of edge represents maximum amount of flow that can pass through an edge per unit of time. Paper presents modification of this problem used for modeling distribution of commodities from depots to customer, assuming that demand of customers, distances between depots and customers and permeability of roads are known.

Mgr. Juraj Pekár, PhD., doc. Ing. Ivan Brezina, CSc., Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave

Addressing the Monetary Policy Dynamic Inconsistency Problem: A Punishment Equilibria

According to the monetary policy time inconsistency theory, the central bank has an incentive to raise the production above its potential level and systematically generates an inflation bias. The low inflation can be sustained (inter alia) by punishment equilibria. The

monetary policy maker maximises the welfare of society subject to the structure of the economy in infinite time horizon. The inflation bias represents a benefit today but cost in the future. The more important is the future for the society, the lower incentive of the central banker to deviate is.

Ing. Karol Szomolányi, PhD., *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

The Application of Circular Tasks to Problems with Advanced Requirements

The aim of this work is to show the routing task Clarke and Wright (CW) savings algorithm proposed for the Capacitated Vehicle Routing Problem. In the beggining of this work I try to propose a normalized formulation to efficiently solve different problems, independent from the measurement units and parameter intervals. To test the performance of the proposed savings function, we conduct an extensive computational study on a large set of well-known instances from the literature. In the second part of the work I try to enlarge the simple CW algorithm with muliply demands to show how we can expand this algorithm.

Ing. Zuzana Škerlíková, *Katedra operačného výskumu a ekonometrie, Fakulta hospodárskej informatiky Ekonomická univerzita v Bratislave*

On Dynamics in a Two-regional Model with Fixed Exchange Rate

A two-regional model which was introduced by T. Asada in "Studies in Regional Science" (2004) is presented. This model describes the development of output, capital stock and money supply in two regions which are connected through inter-regional trade and inter-regional capital movement with fixed exchange rate. Results concerning equilibrium stability, the existence of business cycles and the existence of tori that were reached by T. Asada and P. Maličký – R. Zimka are given.

prof. RNDr. Rudolf Zimka, CSc., *Katedra kvantitatívnych metód a informačných systémov Ekonomická fakulta Univerzita Mateja Bela, Banská Bystrica*

Abecedný zoznam účastníkov

Alphabetical list of participants

Renáta ANTALOVÁ, KÚA FHI EU v Bratislave
Igor BANDURIČ, KAI FHI EU v Bratislave
Katarína BELANOVÁ, KF NHF EU v Bratislave
Ivan BREZINA, KOVE FHI EU v Bratislave
Jaroslav BRZÁK, starosta, Obec Príbovce
Arne CAKL, KŠ FHI EU v Bratislave
Dana DROPPOVÁ, Stopercentná daňová, kom. spol., L. Mikuláš
Barbora DRUGDOVÁ, KP NHF EU v Bratislave
Veronika DUBIELOVÁ, KÚA FHI EU v Bratislave
Peter ĎURKA, KŠ FHI EU v Bratislave
Michal FEIK, KOVE FHI EU v Bratislave
Renáta FEKETEOVÁ, KÚA FHI EU v Bratislave
Michal FENDEK, FHI EU v Bratislave
Josef FIALA, Vysoká škola sociálně-správní Havířov
Mathias FUCHS, Verwaltungs und Privat-bank Liechtenstein
Pavel GEŽÍK, KOVE FHI EU v Bratislave
Tímea GÖGHOVÁ, KÚA FHI EU v Bratislave
Radmila HERZÁNOVÁ, Moravská vysoká škola Olomouc
Katarína HIĽOVSKÁ, Katedra bankovníctva a investovania, Ekonomická fakulta TU Košice
Ľubica HRNČIAROVÁ, KŠ FHI EU v Bratislave
Ľubica HURBÁNKOVÁ, KŠ FHI EU v Bratislave
Stanislava HUSÁROVÁ, KÚA FHI EU v Bratislave
Martin HUSKA, evoline s r.o., Bratislava
Michaela CHOCHOLATÁ, KOVE FHI EU v Bratislave
Zuzana ILAVSKÁ, KŠ FHI EU v Bratislave
Josef JABLONSKÝ, Katedra ekonometrie, Fakulta informatiky a statistiky, VŠE Praha
Zuzana JUHÁSZOVÁ, KÚA FHI EU v Bratislave
Mária KAMENÁROVÁ, Slovenská spoločnosť aktuárov
Sylvia KASTLEROVÁ, KÚA FHI EU v Bratislave
Alena KORDOŠOVÁ, KÚA FHI EU v Bratislave
Antónia KOVALČÍKOVÁ, KÚA FHI EU v Bratislave
Kamil KRAUSPE, KAI FHI EU v Bratislave
Zuzana KRIŠKOVÁ, KÚA FHI EU v Bratislave
Marianna KRŠEKOVÁ, KÚA FHI EU v Bratislave
Veronika KŘELINOVÁ, Katedra účetnictví, Ekonomická fakulta, VŠB-TU Ostrava
Zuzana KUBAŠČÍKOVÁ, KÚA FHI EU v Bratislave
Alena KUCKOVÁ, KÚA FHI EU v Bratislave
Martin KUHN, Ekonomická fakulta VŠB-TU Ostrava
Veronika LITTVOVÁ, KPH FPM EU v Bratislave
Martin LUKÁČIK, KOVE FHI EU v Bratislave
Martina MAČIČÁKOVÁ, KOVE FHI EU v Bratislave
František MADĚRA, KÚA FHI EU v Bratislave
Martin MACHÁČEK, Ekonomická fakulta VŠB-TU Ostrava
Petra MATĚJOVSKÁ, Katedra podnikové ekonomiky, Ekonomická fakulta TU v Liberci

Katarína MÁZIKOVÁ, KÚA FHI EU v Bratislave
Daša MOKOŠOVÁ, KÚA FHI EU v Bratislave
Mihaela MUREŞAN, „Dimitrie Cantemir" Christian University, Bucharest, Romania
Jan NEVIMA, Katedra matematických metod v ekonomice, EF VŠB – TU Ostrava
He NGUYEN DINH, KŠ FHI EU v Bratislave
Anna ONDREJKOVÁ, KAI FHI EU v Bratislave
Marek OŠTROM, KOVE FHI EU v Bratislave
Stanislav PALÚCH, Fakulta riadenia a informatiky, Žilinská univerzita
Jana PATAKYOVÁ, KOVE FHI EU v Bratislave
Vladan PAVLOVIĆ, Megatrend Univerzitet, Novi Beograd, Srbija
Michal PÁLEŠ, KM FHI EU v Bratislave
Juraj PEKÁR, KOVE FHI EU v Bratislave
Štefan PEŠKO, Fakulta riadenia a informatiky, Žilinská univerzita
Ján PITTNER, KAI FHI EU v Bratislave
Józef POCIECHA, Cracow University of Economics
Marián PONECHAL, Dell s.r.o., Bratislava
Eva RAKOVSKÁ, KAI FHI EU v Bratislave
Eva RUBLÍKOVÁ, KŠ FHI EU v Bratislave
Branislav SIARSKY, Katedra informačných technológií FM UK v Bratislave
Ľubica SIPKOVÁ, KŠ FHI EU v Bratislave
Miloš SKLENKA, KÚA FHI EU v Bratislave
Iveta STANKOVIČOVÁ, Katedra informačných systémov, FM UK v Bratislave
Vladimír SUROVÝ, KÚA FHI EU v Bratislave
Mária SZIVÓSOVÁ, KAI FHI EU v Bratislave
Karol SZOMOLÁNYI, KOVE FHI EU v Bratislave
Viola ŠEBESTÍKOVÁ, Katedra účetnictví, Ekonomická fakulta, VŠB-TU Ostrava
Marián ŠEDIVÝ, KAI FHI EU v Bratislave
Michal ŠEFARA, Fakulta managementu Univerzita Komenského
Zuzana ŠKERLÍKOVÁ, KOVE FHI EU v Bratislave
Lea ŠKROVÁNKOVÁ, KM FHI EU v Bratislave
Petra ŠKROVÁNKOVÁ, KM FHI EU v Bratislave
Anna ŠLOSÁROVÁ, KÚA FHI EU v Bratislave
Ján ŠTERBA, KŠ FHI EU v Bratislave
Lucia ŠTEVKOVÁ, KÚA FHI EU v Bratislave
Galina TODOROVA, Bulgaria –University "Assen Zlatarov" Bourgas
Miloš TUMPACH, KÚA FHI EU v Bratislave
Ľubomír TURŇA, KAI FHI EU v Bratislave
Libor VASEK, Katedra finančního účetnictví a auditingu, Vysoká škola ekonomická v Praze
Mária VÉPYOVÁ, KÚA FHI EU v Bratislave
Miroslava VLKOLÁČKOVÁ, KÚA FHI EU v Bratislave
Katarína ZELENÍKOVÁ, KÚA FHI EU v Bratislave
Rudolf ZIMKA, Katedra kvantitatívnych metód a informačných systémov EF UMB, Banská Bystrica