



EKONOMICKÁ UNIVERZITA V BRATISLAVE
FAKULTA HOSPODÁRSKEJ INFORMATIKY

UNIVERSITY OF ECONOMICS IN BRATISLAVA
FACULTY OF ECONOMIC INFORMATICS



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

ZBORNÍK

16. medzinárodná vedecká konferencia

„AIESA – BUDOVANIE SPOLOČNOSTI ZALOŽENEJ NA VEDOMOSTIACH“

organizovaná pri príležitosti 75. výročia založenia
Ekonomickej univerzity v Bratislave

pod záštitou rektora

prof. Ing. Ferdinanda Daňa, PhD.

a

dekana Fakulty hospodárskej informatiky
prof. Ing. Ivana Brezinu, CSc.

PROCEEDINGS

16th International Scientific Conference

„AIESA – BUILDING OF SOCIETY BASED ON KNOWLEDGE“

organized on the occasion of 75th anniversary of the establishment
of the University of Economics in Bratislava

held under the umbrella of the Rector

Prof. Ing. Ferdinand Daňo, PhD.

and

the Dean of the Faculty of Economic Informatics
Prof. Ing. Ivan Brezina, CSc.

5. – 6. November 2015 * 5 – 6 November 2015
Bratislava

INTERNATIONAL SCIENTIFIC COMMITTEE

Guarantor: Prof. Ing. Ferdinand Daňo, PhD.

Rector, University of Economics in Bratislava

Chairman: Prof. Ing. Ivan Brezina, CSc.

Dean, Faculty of Economic Informatics, University of Economics in Bratislava

Members: Dr. h. c. Prof. Ing. Tatiana Čorejová, PhD.

Rector, University of Žilina

Prof. Dr. Ing. Dana Dluhošová

Dean, Faculty of Economics, VŠB – Technical University in Ostrava

Assoc. Prof. Ing. Václav Janeček, CSc.

Dean, Faculty of Informatics and Management, University in Hradec Králové

Prof. Dr. hab. Paweł Lula

Dean, Faculty of Management, Cracow University of Economics

Assoc. Prof. RNDr. Luboš Marek, CSc.

Dean, Faculty of Informatics and Statistics, University of Economics in Prague

Assoc. Prof. Ing. Ladislav Mejzlík, PhD.

Dean, Faculty of Finance and Accounting, University of Economics in Prague

Prof. Dr. hab. Józef Pocięcha

Faculty of Management, Cracow University of Economics

Prof. Dr. Nenad Vunjak

Dean, Faculty of Economics, Subotica, University in Novi Sad

RECENZENTI / REVIEWERS:

Anna Baštincová, Zuzana Čičková, Jozef Fecenko, Andrea Furková, Marián Goga, Galina Horáková, Adriana Horníková, Miroslav Hudec, Ľubica Hurbánková, Janka Hvozďarová, Michaela Chocholatá, Zlatica Ivaničová, Andrea Kaderová, Ladislav Kareš, Eva Kotlebová, Antónia Kovalčíková, Brian König, Martin Lukáčik, Adriana Lukáčiková, Katarína Máziková, Martin Mišút, Daša Mokošová, Anna Ondrejková, Renáta Pakšiová, Michal Páleš, Branislav Parajka, Juraj Pekár, Eva Rakovská, Marian Reiff, Eva Rublíková, Peter Schmidt, Zsolt Simonka, Daniela Sivašová, Mária Szivósová, Karol Szomolányi, Kvetoslava Surmanová, Anna Šlosárová, Tatiana Šoltésová, Milan Terek, Miloš Tumpach, Ľubomír Turňa, Miroslava Vašeková, Mária Vojtková

ZOSTAVOVATELIA ZBORNÍKA: doc. Mgr. Erik Šoltés, PhD.,

Ing. Igor Bandurič, PhD., Ing. Ondrej Dúžik, Ing. Pavol Jurík, PhD.,

Ing. Branislav Parajka, PhD., Ing. Michal Páleš, PhD., Ing. Marian Reiff, PhD.,

Rozsah: 46,82 AH

Celé príspevky sú na CD, ktoré je súčasťou tohto zborníka.

Full articles are on CD which is part of this proceedings.

Zborník neprešiel jazykovou úpravou. Za odbornú stránku príspevkov zodpovedajú autori.

Fakulta hospodárskej informatiky EU v Bratislave,
Dolnozemska cesta 1, 852 35 Bratislava

Vydavateľstvo EKONÓM, Bratislava 2015
ISBN 978-80-225-4151-0

Plenárne rokovanie

Plenary Session

**Optimalizačné modely rovnováhy ponuky a dopytu
na trhoch sieťových odvetví**

**Optimization Equilibrium Models of Demand and Supply
for Network Industries Markets**

Michal Fendek

Abstract

Currently a significant attention in scholarly discussions on various levels is being paid to the subject of network industries. It is understandable as network industries in fact ensure the production and distribution of energy sources which play a key role in an effective operation of the developed economies. The discussions are usually focused on the question of a reasonable profit of the network industries companies and on the other hand on the question of prices which are determined by the reasonable and generally acceptable costs of their production.

Naturally, equilibrium on the network industries market, as well as on any market, is being created based on the level of demand and supply on said market. In this paper we will discuss the analysis of microeconomic optimization models of consumers and producers behavior on the network industries market, i.e. the analysis of demand and supply phenomena on this specific market.

In paper we study the properties of a network industry optimization problem and economically interpretable implications of Kuhn-Tucker optimality conditions of this model.

Key words

Network industries, equilibrium model, optimality conditions, supply, demand, effective allocation

Age and the Structure of International Trade in the EU

Gerald Groshek

Abstract

The gravity model is a starting point for many analyses of the patterns in international trade. The theory has been extended beyond measures of economic size to include distance, culture, multinational activity, and exchange rate regimes as factors that influence trade between two countries. Life-cycle theory asserts that the age composition of a country affects the level of consumption expenditure such that the youngest and oldest consume less than those at their consumption peak (aged 45-55). Since a non-trivial percentage of consumption in open economies falls on imports, this study explores the influence of age composition as a novel factor affecting bilateral and international trade. Specifically, the discussion considers whether aging populations in European Union (EU) will affect intra-EU trade and the economic prospects of member states. The results suggest that age demographics could be added to the list of variables included in gravity model analyses of trade. For the EU, age demographics and the effect on trade could explain its initiatives to establish FTAs with non-EU countries/regions, along with its support for increased immigration and the potential for enlargement to 'younger' countries.

Key words

Gravity model, Intra-EU trade, Age and consumption

Structural Topic Models as a tool for the analysis of research projects conducted at the Cracow University of Economics

Paweł Lula, Monika Hamerska

Abstract

The paper presents the results of analysis of research project conducted at the Cracow University of Economics (*CUE*) in 2014. Using a set of project descriptions written in Polish a structural topic model was estimated. This formal model allowed to identify main research areas represented at *CUE* and relations between *CUE* faculties and main topics of research activity.

In the first part of the paper Structural Topic Models (*STM*) were presented. Next, in the empirical part of the paper, the identified areas in scientific activity were presented and discussed. Finally relations between research topics and *CUE* faculties were shown. Conclusions and bibliography are located in the last part of the paper.

Key words

Structural Topic Model, text mining, automatic information retrieval, analysis of research activity

New Products Market With Fuzzy Linear Programming

Otilija Sedlak, Jelena Birovljev, Nenad Vunjak, Zoran Ciric

Abstract

Decisions need to be made even with lack of perfect information. This is what motivates the use of fuzzy linear programming models for decision making under uncertainty. This paper presented the decision analysis process both for public and private decision making under different decision criteria, type, and quality of available information. Basic elements in the analysis of decision alternatives and choice were described as well as the goals and objectives that guide decision making. We used a unique numerical example for suitable expression of these techniques, so the reader can clearly touch on the difference and similarity points of discussed methods.

This tutorial has been written through a simple literature so it can help managers to understand decision making concepts and to make better decisions in uncertain conditions that will open a new window in their minds.

In our paper we have undertaken modelling for managing uncertainty and for learning about the dynamics of markets of the new products. This has shown useful in the cases exhibited here and by no means limited to them or to the particular circumstances that have been studied.

The general approach indicated in this paper can be followed and applied elsewhere, but always observing the assumptions and limitations in each case where intended to pursue.

Key words

Decision making, fuzzy sets, linear programming, uncertainty

1. sekcia

1st Section

Informačné technológie a informačné systémy

Informatics technologies and information systems

Architektúra mikroslužieb

Microservices architecture

Igor Bandurič

Abstract

Along with increasing number of software whose cannot be classified as average systems, becomes demand also for different architectonical approach for building such applications. The main difference from average application is mainly in users served. One of the new architectonical style which emerged is micrservices architecture (“microservices” therefrom). New architecture offers advantages over traditional architecture but also disadvantages. This paper analyzes existing definition of this architecture together with its pros and cons.

Key words

architecture, microservices, monolithic architecture

Změny ve struktuře lidských zdrojů v ICT v České republice

Structural Changes in Human Resources in ICT in the Czech Republic

Petr Doucek, Ladislav Luc

Abstract

Information and communication technology (ICT) brings innovations into today's society and changes the patterns of our behavior. Even though mastering ICT is considered one of the key factors of economic, social and political development, it also comes with many negative factors. The article focuses on the trend in ICT human resources. It analyzes the number of „ICT Professionals“ in the Czech economy by the group of professions they perform and by the category of their achieved education in terms of the past 11 years. The presented trend of the past years also shows the percentage of women and men in ICT professions. In the end, the author presents the demographic structure of today's „ICT Professionals“ by age group.

Key words

Human Resources in ICT, Structure of Human Resources, ICT Professionals, ICT Competences

Komparácia online účtovných systémov na Slovensku

The comparison of online accounting systems in Slovakia

Jolana Gubalová, Andrea Peťková

Abstract

The aim of this paper is to highlight the possibilities of using cloud computing solutions in the economic practice, focusing on the area of online accounting systems. The authors conducted a comparison most common online accounting systems in Slovakia in terms of their functionality and costs associated with them. Using electronic questionnaires surveyed users opinions from practice for one of them. Based on the results expressed recommendations for practice.

Key words

Cloud computing, Online accounting systems, Keepi, Humanet, Profit365, Helios One.

Flexibilný odporúčací systém založený na conformance a t-norm funkciách

Flexible recommender system based on the conformance and t-norm functions

Miroslav Hudec

Abstract

It is not an easy task to recommend the most suitable object from a large set of objects expressed by various attributes. For users is suitable to express requirements by linguistic terms because they keep users uncertainties related to the requirements. This paper is focused on building fuzzy recommender system based on conformance functions, t-norms and fuzzy implications. In the first step domains of numeric attributes are partitioned into the overlapping sets. Each set gets its own linguistic interpretation. In the second step conformances between these linguistic interpretations and users preferences are sought. In the third step t-norms are used to recognize the most suitable object and recommend it. The paper gives the touch of discussion related to the suitability of different t-norms. When attributes bear different importance for users, fuzzy implications can be used. The procedure is demonstrated on the illustrative example.

Key words

Fuzzy recommending, Vague condititons, Conformance, Aggregation, Implication, t-norm

Počítačové programy a zmluvné vzťahy v novom právnom rámci v SR
Computer programs and contractual relations in a new legal framework
in the Slovak Republic

Anna Ondrejková

Abstract

The contribution deals with the current legal framework, which is related to the production, supply and use of computer programs, databases, IT services and technology. In the Slovak Republic was currently adopted a new Act - Act No. 185/2015 Col. according to the copyright law with effect from 1 January 2016, which among other things, responding to the new legal conditions in the environment of the global computer network Internet. The aim of the concept of a new copyright law was the preparation of a modern and flexible legislation that ensures authors and other rightholders to exercise their rights more effectively in the frameworks laid down by European and international law. On the other hand, however, will not pose an obstacle to the dissemination of culture, education and research for the development of the Internet economy and the promotion of results of creativity. In practice, it is often possible to meet with a lot of uncertainties and disputes arising from the contractual relations in the IT environment in the field of production, purchase and sale of the software, and also for reasons that are often given a minimum attention to the elaboration of contracts and relevant documentation, as well as the definition of its content.

Key words

Computer program, database, information and communication technology, copyright, licence agreement, licence Creative Commons

Existencia znalostného inžinierstva ako súčasť softvérového inžinierstva

Knowledge Engineering existence as a part of Software Engineering

Eva Rakovská

Abstract

The concept of knowledge engineering is nowadays often associated with Knowledge Management and in the past, this term was related closely only with the creation of intelligent systems (Negnevitsky, 2005). This paper considers about current problems in IT projects and directly in the development of IS, where the developers often abandon precise analysis and support the "fast programming of software" by using a composition of functions and applications. Many information systems have elements of artificial intelligence (or tools of AI), so it is necessary to analyze the environment, processes and activities, that address the task, which belong to the "human category decision process" by their development. The paper shows the relationship between software engineering and knowledge engineering in the development of IS, as in the 21st century has blurred the boundary between artificial intelligence and traditional IS-concept.

Key words

Knowledge Engineering, Software Engineering, Knowledge Process analysis, IT project, Knowledge Management

Efektivita FB stránky v online marketingovej kampani vybranej spoločnosti

Efficiency FB page in the online marketing campaign of the selected company

Mária Szivósová

Abstract

The paper deals with the possibility of whether the social networking, phenomenon of modern information and communication technologies, able to influence Internet marketing campaign as one of the main tools of Internet marketing today. We tried to measurably demonstrate how they affect online marketing and advertising in an environment of social networks on the results of the efficiency of the business plan, which is part of the corporate strategy.

Important today is not to underestimate the impact of social networks in the business environment. This phenomenon has long since today not only serves the communication between people as individuals, but it is a very effective tool in the advertising strategies of the company. Therefore, we have recommended, whether nascent or and the established companies to incorporate the use of social networks in devising their marketing strategy. As we presented in this paper, with the proper design and implementation of pages on the social network, this means effective in maximizing the potential of marketing strategy

Key words

social networking, marketing campaign, online marketing and advertising, a business plan

Prejav dynamických systémov v technickom a sociálnom prostredí

The behavior of the dynamical systems in technical and social environment

Lubomír Turňa

Abstract

Results of the analysis of biological species coexistence in their various relationships, such as cooperation, competition, antinomy are within mathematical ecology known for almost a century. The same mathematical apparatus of evolution equations, but the complexity of nonlinear dynamical systems, within the synergistic approach used for monitoring the coexistence of inanimate entities, for example. in particle physics theories, in the behavior of gases and thermodynamics, quantum generator, in the theory of management and so on. The contribution follows the use of mathematical tools, for example. in the area of information technology, eventually. and the analysis of interacting stakeholders and groups in the socio-economic environment. After analyzing the relationship can be concluded that the results lead to a dynamic expression which finally led to the periodically repeating phenomenon, contingent upon the existence of limit cycles, if necessary. even attractor.

Key words

Coexistence, non-linear systems, information technology

Pamäťová odozva informačného a sociálno-ekonomického prostredia v dôsledku ich postupného exploatačného a saturačného znehodnotenia

Memory response of the informatic and socio-economic environment due to their degradation of gradual saturation and exploitation

Lubomír Turňa

Abstract

Any activity in any environment or device, the environment changes, even impaired, whether it wears direct abrasive manner or possibly saturation of options owing to loss or exhaust consumed by his limitations in capacity, or clogging resulting discarded, often polluting waste products. The environment maintains changes of a their properties as a result of these processes store in its "memory", as a result of something changing its quality and thus able to use the surroundings. The contribution aims to analyze on a simple model of the process and determine the conditions change of environment characteristics using the parameter of the model.

Key words

Memory of environment, degradation, exploitation, wear.

2. sekcia

2nd Section

**Aktuálne trendy vývoja
teórie a praxe účtovníctva a audítorstva**

**Current trends of development
of accounting and auditing theory and practise**

Oddelené riadenie fixných a variabilných nákladov v podmienkach slovenských podnikov

Separated control of fixed and variable costs in terms of the Slovak enterprises

Renáta Antalová

Abstract

This article elaborates benefits of separated monitoring and control of fixed and variable costs for the reason to bring management decisions. Pointing on the causes why variable costs calculation (direct costing) is chosen as a reaction on shortcomings of the calculation based on full costs. However, it also shows the limitations respectively alleged limitations of variable costs calculation. In spite of the listed drawbacks this system still brings significant benefits in the environment of Slovak manufacturing companies, especially in sectors of mass respectively serial production with short production cycles. The reason of this statement is, that solving of issues in production composition or consideration about own production versus purchase, does not necessarily result in correct decisions if the base for this decision relies on calculations based on full costs.

Key words

direct costing, absorption costing, variable costs, fixed costs

Daňová podpora výskumu a vývoja v Slovenskej republike

Tax advantage the research and development in the Slovak Republic

Anna Baštincová

Abstract

Tax advantage the research and development is an important factor to increase competitiveness and sustainable development of the Slovak economy. In addition to other supporting programs is the desire of the Slovak Government to increase the research and development activities in the form of tax incentives. It is a scheme of State aid to businesses, who carry out research and development beyond the scope of its business activities. The contribution is focused on the promotion of research and development in the Slovak Republic in the form of tax credits, and deduction of the costs of research and development on the basis of income tax. Contains the definition of the research and development, that can be applied to the benefit, the content of the project as the elementary conditions for application of tax benefits, eligible costs for the project, the responsibilities of project solvers, the terms and conditions and the calculation of tax exemption and deduction of the cost of research and development.

Key words

research, development, tax advantage, tax incentives, Slovak Republic.

Komparácia položiek súvahy mikro účtovnej jednotky so súvahou malej a veľkej účtovnej jednotky

The comparison of balance sheet items of micro-accounting entity with the balance sheet of small and large accounting entity

Miriama Blahušiaková

Abstract

The balance sheet is one of the components of the complete set of financial statements that presents the final balances of assets, liabilities and equity as of the balance sheet date. By implementation of The Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC into the Slovak accounting legislation there were issued three decrees on financial statements according to the size of entity, the micro, small and large entity.

The paper is concerned on the comparison of the balance sheet items of micro-accounting entity with the balance sheet of small and large accounting entity.

Key words

Balance Sheet, micro-accounting entity, small accounting entity, large accounting entity

Forenzný audit – história, definícia a základné charakteristiky

Forensic audit – history, definition and basic characteristics

Denisa Domaracká, Adriana Stanková

Abstract

Meaning of the word audit has been changed and evolved over several centuries.

The original latin meaning „listening“ has been replaced trough the years by „independent verification“.

Forensic audit as a specific type of audit means fraudulent investigation of an entity and the level of the examination is defined by the client.

Even though in Act. No. 540/2007 the audit and related concepts are defined, the term of forensic audit is not mentioned there.

This article aims to analyze the historical background, to define the characteristics of forensic audit and terms related to it.

Key words

Audit, Forensic Audit, Characteristics of Fraud Investigation

**Dôvody a zameranie postimplementačnej revízie
IFRS 3 *Podnikové kombinácie***

**Reasons and focus of the post-implementation review
of IFRS 3 *Business Combinations***

Renáta Hornická

Abstract

The present accounting approach for business combinations according to IFRS is result of gradual development within Business Combinations project. The Business Combinations project was in the IASB agenda during 2001-2008. Business Combinations are in the scope of IFRS 3 *Business Combinations*, which is effective as of 1 July 2009. The objective of the IFRS 3 is to enhance the relevance, reliability and comparability of the information presented in the financial statements of the entity where business combinations occurred. IFRS 3 (2008) requires application of the acquisition method. During 2013 – 2015 IASB carried out post-implementation review IFRS 3 *Business Combinations*. The review objective was to consider whether IFRS 3 provides useful information for users and refers to challenges related to implementation of this standard. Based on the results of post-implementation review, IASB added new projects related to business combinations into its agenda. The objective of the paper is to present the reasons of post-implementation review of IFRS 3, to analyze focus areas of post-implementation review of IFRS 3 and to refer to results of post-implementation review IFRS 3.

Key words

business combinations, Business Combinations project, post-implementation review of IFRS 3

Aktuálny prehľad medzinárodných audítorských štandardov prijatých v Európskej únii

Current overview of ISAs acceptance in the European Union

Katarína Hunyady

Abstract

Based on the Directive 2014/56/EU amending Directive 2006/43/EU on statutory audits and the Regulation No 537/2014: „The European Union /EU/ member states shall require statutory auditors and audit firms to carry out statutory audits in compliance with international auditing standards adopted by the Commission".

The EU member states have voluntarily already adopted the International Standards on Auditing /ISAs/ at a national level, either without modification or with a few national additions.

The contribution includes an overview of the current adoption status of ISAs in the EU:

- overview of status to clarified ISAs¹ adopted in each EU member state;
- current add-ons or carve-outs to ISAs in the EU;
- adoption of ISQC 1 in each EU member state;
- guidance on proportionate application of clarified ISAs and ISQC 1 in EU member states.

This contribution is only aimed at providing the current overview of acceptance ISAs in the EU and doesn't ensure a detailed legal analysis of ISAs.

Key words

ISA, ISQC 1, audit, European Union

¹ “Clarified” ISAs are the outcome the IAASB’s Clarity Project.

Etické aspekty formovania názoru audítora pri audite účtovnej závierky
Ethical aspects of forming the audit opinion in the audit of financial statements

Janka Hvoždarová, Ján Sapara

Abstract

The result of audit is the auditor's report, where an auditor expresses his perspective or opinion at financial statements, which are subject to audit. The rule of fair and true view of the reality in financial statements is exercised with a particular care. The order of actions applied in the process of audit is regulated by the corresponding legislation and by the international standards ISA. The auditor, step by step works his way to the conviction, that the obtained auditor's evidence, give them a solid foundation to support his opinion expressed in the report. In this study we point to the possibility, that his conviction, obtained using the corresponding legal framework, may be in conflict with his autonomous instrument – with his conscience.

Key words

auditor's opinion; auditor's conviction, auditors conscience, autonomy of conscience.

**Osobitosti konsolidovanej účtovnej závierky vo verejnej správe
v porovnaní s konsolidovanou účtovnou závierkou u podnikateľov**

**Specifics of consolidated financial statements in public administration
in comparison with consolidated financial statements for businesses**

Hana Jakubíková

Abstract

In this article I characterize the specifics of consolidated financial statements in public administration in comparison with consolidated financial statements for businesses. I have focussed on Slovak accounting regulations and other regulations that define which legal entities have the obligation to produce this accounting record and what procedures they are to use when creating this accounting record. In the first part of this article I examine various types of legal entities in public administration to whom this obligation pertains and this is one of the specificities of consolidated financial statements in public administration. On the basis of this organisational classification in public administration, these legal entities are obliged, in producing consolidated financial statements, to use methods and particular types of accounting records which are prescribed for them in Slovak accountancy regulations as distinct from legal entities from the business environment. Legal entities from the business environment produce their consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as approved by the European Union. At the third part of this article I examine the components of the consolidated financial statements which uses the entity – trading company and an entity of public administration, the differences between them.

Key words

Legal entity, business environment, public administration, consolidated financial statements, consolidated group, accounting entity.

Význam štruktúry účtovnej závierky poisťovne pre používateľov

The importance the structure of financial statements for users

Zuzana Juhászová, Oľga Kadlečíková

Abstract

Entities that prepare financial statements in accordance with International Financial Reporting Standards IFRS, do not have a specific structure of financial statements by the end of the accounting period are prepared. Each entity compiles the reports separately, for the purposes of reporting the statements structure selected individually. The criterion for recognizing this or that item alone is its significance from the perspective of the entity. Between the entities that have this fact in preparing the financial statements take into account include the insurance company.

In this article we will focus on the financial statements of insurance companies, which changed the structure of financial statements, we will point to items which those changes affected the most. The end of the article evaluate the impact of changes to user the information collected financial statements.

Key words

financial statements, the principle of materiality, information

**Povinnosť overovania a ukladania účtovnej závierky
neziskových účtovných jednotiek**

**Audit requirement and keeping of financial statements
of non-profit accounting entities**

Alena Kordošová

Abstract

The financial statements, which are constituted as a whole, are a structured presentation of facts which form the subject of accounting. They are intended for a diverse range of users who use this information. The financial statements of non-profit accounting entities have their particularities in comparison with financial statements of other accounting entities. The paper is focused on examining the particularities of financial statements of non-profit accounting entities. Depending on the keeping of accounting in the system of bookkeeping on the basis of cash receipts and disbursements or double entry bookkeeping, non-profit accounting entities prepare financial statements in the prescribed structure, which corresponds to the system of accounting used in non-profit accounting entities. In the system of bookkeeping on the basis of cash receipts and disbursements, the components of the financial statements are the statement of cash receipts and cash payments and the statement of assets and liabilities. In the system of double entry bookkeeping, the components of the financial statements are the balance sheet, the income statement and the notes. The result of the examination of the financial statements of non-profit accounting entities is to point out the particularities of the financial statements of non-profit accounting entities, to define the terms of auditing the financial statements and the deposition of the financial statements in register of the financial statements for specific types of non-profit accounting entities.

Key words

financial statements, audit, deposition, register of the financial statements, non-profit accounting entities

**Účtovníctvo rozpočtových organizácií, príspevkových organizácií
a obcí v procese jeho harmonizácie na Slovensku**

**Accounting of budgetary organizations, allowance organizations
and municipalities in process of its harmonization in Slovakia**

Antónia Kovalčíková

Abstract

Accounting of budgetary organizations, allowance organizations and municipalities belongs to traditional and still actual problems examined in scientific research because of its development in Slovakia and in the world. The article presents results of the analysis of accounting of budgetary organizations, allowance organizations and municipalities in its development in Slovakia from the year 2003 until now. The year 2003 is important due to changes in accounting that resulted from the passing of the new Act on Accounting. Accounting of these specific entities of public sector has developed in the period under review. Basic changes in the accounting as result of the process of amendment of Act on Accounting and as result of the development of accounting in process of harmonization of national accounting legislation of public sector entities with IPSAS are described in the article. Subject of the analysis of the accounting of budgetary organizations, allowance organization and municipalities were basic characteristics (subject of the accounting, accounting period, accounting systems) and financial statements (definition, components of financial statements, types of the financial statements).

Key words

Accounting, financial statements, budgetary organization, allowance organization, municipality

**Oceňovanie biologických aktív ako základný metodický prvok ovplyvňujúci
vypovedaciu schopnosť účtovných informácií v poľnohospodárskej účtovnej
jednotke v kontexte právnej úpravy SR a nadnárodnej právnej úpravy**

**Measurement of biological assets as the basic methodical element influencing
the explanatory ability of accounting information in an agricultural accounting
entity in the context of legal legislation of SR and international legal legislation**

Iveta Košovská, Ivana Váryová, Alexandra Ferenczi Vaňová, Renáta Krajčírová

Abstract

Agricultural produce differs from other sectors of the national economy by its biological character, relatively long production cycle and dependence on the effectiveness from land-climate conditions which might not be managed by a man. Therefore it is indispensable to adapt accounting evidence and recognition of agricultural produce to the specifics and risk arising from agricultural activities. Agricultural accounting entities utilize mainly biological assets in its activity. The measurement of assets and liabilities as at the measurement date is crucial in each accounting entity not excluding agricultural entities. The most essential legal norm in the Slovak Republic focusing on the measurement is the Act No. 431/2002 Coll. on Accounting. The Slovak Republic with its entry to the European Union has adopted and implemented not only the Common Agricultural Policy of the European Union but as well the legal norms related to the accounting which is fully in accordance with the directives of the European Union and sequentially other articles of IFRS have been adopted. Biological assets which are used in agricultural activities are regulated in the individual accounting standard IAS 41 Agriculture. The reason for the selection of biological assets from the influence of other IFRS (e. g. from IAS 16, IAS 2) is their specifics which require the application of other accounting methods in the measurement area.

Key words

accounting, the biological asset, International Accounting Standard IAS 41 Agriculture, measurement, recognition

**Koncepcia správy audítora v kontexte novelizovaných
Medzinárodných audítorských štandardov so súčasným vplyvom odzrkadlenia
potrieb používateľov audítorských správ**

**The concept of the auditor's report in the context of the revised
International Standards on Auditing influence reflects the current needs
of the users of audit reports**

Petra Krišková, Ján Užík

Abstract

The aim of the feature is to point out at the importance of the information stated in the auditor's report in relation to the new requirements of International Standards on Auditing. The auditor's report represents the communication tool between the auditor and the users of the information included in the financial statements. The current model of the auditor's report is the short formalized report, describing briefly the subject of the audit, responsibility of the management, responsibility of the auditor and auditor's opinion. The existing business environment and the pertaining distrust of the recipients towards the accounting information increase the claims for financial reporting, as well as for the audit itself. The new requirements for the content and form of the auditor's report brings especially the need for improvement and increase of understandability of the auditor's report with the aim of enhance the presentation of audit work and also to strengthen the transparency and credibility of financial reporting.

Key words

Auditing, auditor, auditor's report, financial statements

Prvky účtovnej závierky subjektov verejného sektora

Elements of financial statements of public sector entities

Marianna Kršeková

Abstract

Financial statements show the financial effects of transactions and other events by grouping them into broad classes which have common economic characteristics. These broad classes are termed the elements of financial statements. Elements are the building blocks from which financial statements are constructed. These building blocks provide the basis for recording, classifying and aggregating economic data and activity in a way that provides users with information that meets the objectives of financial reporting to provide information that is useful for accountability and decision-making purposes. The paper is focused on examining the characteristics and recognition criteria of elements in the financial statements of public sector entities. The characteristics and recognition criteria of elements in the financial statements of public sector entities are studied in the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities. The elements of financial statements of public sector entities are assets, liabilities, revenue, expense, ownership contributions and ownership distributions. The result of the examination of elements of financial statement is a comprehensive set of knowledge of elements of financial statements in terms of their characteristics and recognition criteria in the financial statements of public sector entities.

Key words

Financial Statements, Elements of Financial Statements, Assets, Liabilities, Revenue, Expense

**Osobitosti uplatňovania systému DPH v SR a SRN
v kontexte harmonizačného procesu**

**Particularities of VAT system application in SR and in Germany
in harmonization process**

Milada Kuceková

Abstract

Harmonization of indirect taxes is a necessary condition for the functioning of the single market of the European Union. Part of the process of harmonization of indirect taxes is the introduction of a unified system of taxation of value added tax. Objectives that Member States are obligated to achieve, covered by Council Directive 2006/112/EC on the common system of value added tax. The choice of way and methods of objective's implementation of the Directive into their national law is left to the national authorities. Content of the article is an analysis how to implement the aims of the common system of value added tax to the national legislation of the Slovak Republic and the Federal Republic of Germany, identifying of common characteristics of taxation, as well as differences arising from the national sovereignty of states.

Key words

European Union, harmonization, directive, value added tax

Verný a pravdivý obraz: Pohľad regulácie účtovníctva a audítorstva

True and fair view: A view of the regulation of accounting and auditing

František Maděra

Abstract

The aim of this paper is to analyze and assess the issue of definition of the basic principle of double entry bookkeeping, which is the principle of true and fair view. It provides the objective of accounting – the presentation of a true and fair view of the financial position of an entity, its financial performance and its cash flows. The source of such information is the financial statement. The analysis showed that the legal framework for the regulation of accounting under the Slovak Accounting Act does not quite adequately regulate the area. We believe, that it would be appropriate to reformulate some passages of the law, if necessary also implementing rules to this law (e.g. the definition of the subject of accounting, the definition of the concept of true and fair view, expressly provide in the relevant provisions that primarily for the needs of reporting is not a true and fair view, but hold on the requirements of the applicable regulation).

Key words

Applicable financial reporting framework, subject of the accounting, fair presentation framework, compliance framework, true and fair view

**Die Entwicklungstendenzen der Rechnungslegung im Hinblick
auf die Finanzwirtschaft und Finanzwissenschaft**

**The development trends of the accounting with regard to the financial
management and financial science**

Peter Markovič

Abstract

The article deals with the problems of accounting, with a focus on the role of accounting in the financial management of business and in corporate governance. The subsequent synthesis is intended to show what influence the quality and quantity of data from the accounting to the information asymmetry of the financial manager. One of the important components of the reduction of the information asymmetry ensures the code for managing and implementing the company, where the 6 key principles to address the most important problems of relationship "Financial Manager-Owner". Hence the scientific content is met, a portion of the contribution of the issue is devoted to accounting from the perspective of financial science. The legal basis is in the Slovak legislation, IFRS / IAS, as well as the recommendations of various associations in the field of corporate governance.

Key words

Corporate Governance, Corporate Risk Management, Fair Value, Financial Accounting, Financial Decision-Making, Financial Reporting

Účtovníctvo a účtovnícka profesia v 21. storočí
Accounting and the accountancy profession in the 21st century

Jitka Meluchová, Martina Mateášová

Abstract

Accounting represents its focus important source of information, which are a key component of any enterprise information system. A well-functioning information system provides timely, accurate and reliable information, which are currently the largest source of wealth for financial management, planning and decision making. Not all businesses are aware, however, that central position in the enterprise's information system has just accounting. The primary function of accounting is to provide relevant data. Accountant profession is often referred to as a routine you easily replace the accounting software. At the beginning of 2014, The Economist published an article in which they have been appointed positions that in the near future, robots will replace and between these two positions are not missing an accounting profession. Technology is a useful servant but only if they are used wisely and balanced. The paper will therefore focus on the role and importance of accounting and accounting profession in the 21st century.

Key words

accounting, accounting profession, labor market, financial management, information system

Vlastnícka transakcia v dôsledku nákupu vlastných akcií akciovou spoločnosťou z pohľadu účtovníctva

The ownership transaction as a result of the purchase of own shares in joint stock company from the perspective of accounting

Katarína Máziková

Abstract

One of the property transaction is the disappearance of shareholder participation during the existence of the joint stock company. Joint-stock company may be due to the withdrawal of the shareholder to withdraw from circulation the portion of shares that belongs shareholder who is leaving the company stock. In this situation, there may be no possibility of a joint stock company's own shares by purchase or shareholder receives free. In accordance with § 161d paragraph 1 of Law no. 513/1991 Coll. Commercial Code, as amended, to create a "special reserve". Special Reserve Fund shall be established in the amount of own shares. 31.12.2014 by a company within the meaning of § 47. 9 Measures Slovak Ministry of Finance of 16 December 2002 no. 23054 / 2002-92 laying down details of accounting procedures and framework chart of accounts for entrepreneurs keeping double-entry accounting, as amended, the possibility of such an alternative reality to charge the account a legal reserve fund from capital contributions or on account of the legal reserve fund. This creates differences in terminology and in contents and accounting to account Legal reserve fund from capital contributions account and the legal reserve fund.

Key words

stock company, event, reserve

Moderné ponímanie interného auditu

Modern concept of internal audit

Martina Mateášová, Jitka Meluchová

Abstract

Internal audit has traditionally been seen as a tool for monitoring compliance with corporate policies and guidelines. The internal audit was intended to ensure consistency of processes in the company with the current legislation. An internal audit in this sense played the role of watchdog. The traditional concept of internal audit still persists, enriched by the new trends although, activities and procedures required by modern management. This article focuses on the added value that should be included in the activities of an internal auditor to be able to respond swiftly to new threats arising from the development of technology, legislative changes. The auditor should be able to identify new opportunities for process optimization and business development, thus contributing to the achievement of strategic objectives. The contribution of internal auditor should bring new opportunities that will help reduce costs and streamline business processes and above all protect it against internal and external risks.

Key words

the internal audit, internal auditor, value added, enterprise, risk

Vývojové trendy a stav Koncepčného rámca pre finančné vykazovanie

Trends in development and status of Conceptual Framework for Financial Reporting

Daša Mokošová

Abstract

The *Conceptual Framework for Financial Reporting* (the „Conceptual Framework“) is not a separate international standard for financial reporting to address some specific issues. The Conceptual Framework determines the theoretical bases for the preparation and application of the rules set in the International Financial Reporting Standards. The International Accounting Standards Board successively amends the rules in the International Accounting Standards (previously published accounting rules) or it replaces them by the new standards. The replacement decision depends on the range of amendments to be applied. This is the reason why the International Accounting Standards Board has opened several projects to revise all accounting rules since the beginning of its work in April 2001. One still not finished yet project is the project with name „Conceptual Framework“ that runs with the related „Disclosure Initiative“ project and „Financial Instruments with Characteristics of Equity“ project. The Conceptual Framework nowadays reminds a kind of hybrid text in combination of rules adopted by the International Accounting Standards Committee in 1989 and amendments published by the International Accounting Standards Board. The project receiving the new version of the conceptual framework has been going on since 2004.

Key words

Conceptual Framework for Financial Reporting, IFRS, IASB, financial statements, European Commission, EFRAG

Oceňovanie majetku a záväzkov pri kúpe podniku
The valuation of assets and liabilities in purchase of the company

Lucia Ondrušová, Branislav Parajka

Abstract

Purchase of the company is one of the owners transactions where there is a change of the owner of the individual types of assets and liabilities. When purchase of the company the seller undertakes to transfer to the buyer ownership of things other rights and other assets that serve to operate the business. Buyer agrees to assume the obligations of the seller, relating to the businesses and pay the price. In carrying out the sale of the company should also be taken of the method of valuation. The enterprise sells for certain pre-determined sales price is the only objective valuation of the whole transaction. For the seller, the return and claim arose from the sale of the company. The buyer of the title to an obligation, while the price shown is the value of the acquired business as a whole. On the other hand, the purchaser in respect of the obligation from the purchase of the company as a whole does that price sufficient explanatory power to award individual components of the acquired assets and liabilities. The buyer is obliged to recognize the components of assets and liabilities at fair value, while they also recognize in their accounts. Valuation of individual assets and liabilities at fair value in the accounts of the purchaser shall be subject to the contribution.

Key words

purchase of the company, valuation, fair value, assets, liabilities

Zmeny v oceňovaní podľa novely zákona o účtovníctve v SR
Changes of valuation in line with the amended Accounting Act in Slovak Republic

Renáta Pakšiová

Abstract

Accounting Act 130/2015 Coll., amending Accounting Act 431/2002 Coll., enters into force on 1 July, 2015 and is published in insert 40/2015 of the Collection of Laws of the Slovak Republic. Its provisions regulate measurement methods according to Directive 2013/34/EU of the European Parliament and of the Council on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC. This amendment was adopted based on the request of the Directive that Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 20 July 2015. All amended provisions in the fifth section of the Accounting Act (Measurement methods) enter into force on 1 January 2016, thus in line with the request of the Directive transposition so that the amended provisions apply first to the financial statements for an accounting year starting 1 January 2016 or during the calendar year of 2016. In the area of measurement, the amendment primarily changes the measurement in fair value and some definitions of basic concepts, measurement parameter was removed – reproductive purchase price and measurement methods change in accounting items, where they were used.

Key words

Valuation, Directive 2013/34/EU of the European Parliament and of the Council, Accounting Act in SR, fair value.

The Analysis of Cost Structure and Cost Management Methods Applied in Croatian Real Sector

Hrvoje Perčević, Mirjana Hladika, Marina Mićin

Abstract

In modern contemporary business conditions information about costs is one of the most important and crucial information for management. This is due to the fact that majority of companies which operate on turbulent complex international markets usually cannot significantly influence on market prices so the only possible area in which they have impact in order to achieve the required level of profitability are costs. Modern managerial accounting has developed new instruments, approaches and methods suitable for today's business environment for more effective cost management. Besides, majority of companies which use modern technologies are faced with significant change in their cost structure. The portion of indirect fixed cost is continuously increasing, while at the same time the portion of direct and variable cost is decreasing. The purpose of this paper is to provide a comprehensive analysis of cost structure in Croatian companies from the real sector as well as to identify which cost management methods are generally used in Croatian companies.

Key words

Cost structure, cost management methods, Croatian real sector

Transferové ceny ako nástroj eliminácie vyplácania podielov na zisku minoritným spoločníkom

Transfer prices as a tool of the elimination the payment of profit shares to minority companions

Norbert Seneši

Abstract

Relevance of the topic of transfer pricing has in recent years upward trend from a global perspective. The reason is the recognition of the tax administrators and naturally also national governments the fact, that purposely setting of transfer prices between related parties may through targeted transfers of profits or losses significantly affect the amount of the taxable income of such persons and thus an important source of state budget revenues. To prevent the transfers of profits or losses and the subsequent erosion of the tax base of these entities are from the international and national point of view using different methods of transfer pricing and adjustments of the tax base under the provisions of tax laws of a particular state. Therefore the fact is, that in the topic of transfer pricing is interest mainly concentrated on the relationship company - income tax - state, namely the relationship of the company towards the external environment. It seems to along all of this is escaping attention to that, what impact may have purposely setting of transfer prices for the company itself within its internal environment. Transfer prices are however significantly affecting the profit or loss, which is determining the amount of paid profit shares. What role can transfer prices play in relation company - profit share - companion?

Key words

transfer prices, profit or loss, profit share, companion

Zostavenie prehľadu peňažných tokov podľa platnej právnej úpravy účtovníctva podnikateľov od 1. 1. 2015

The preparation of Statement of cash flows in accordance with the current accounting regulations for entrepreneurs from 1 January 2015

Miloš Sklenka

Abstract

The accounting and mainly financial statements have recently undergone changes in the legal norms. The changes were caused by the adoption of Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC, that the member states had to bring into force the laws, regulations and administrative provisions by 20 July 2015. Following the changes, the Act on Accounting as well as the Measures of the Ministry of Finance of the Slovak Republic regarding accounting procedures, framework chart of accounts and financial statements for entrepreneurs were amended. One of these was a change in the preparation of Statement of cash flows. The objective of this article is to define the basic terms, methods of reporting cash flows as well as options of reporting items in the Statement of cash flows prepared from 1 January 2015. In this article, we also deal with a comparison of accounting regulations for entrepreneurs on the Statement of cash flows coming in force from 1 January 2015 with accounting regulations for entrepreneurs valid until 31 December 2014.

Key words

Cash Flow Statement, operating activities, investing activities, financing activities, methods of cash flows presentation, large accounting entity, subject of public interest.

Mediánové testovanie vybraných syntetických ukazovateľov finančnej analýzy „ex ante“

Median testing of selected synthetic indicators of "ex ante" financial analysis

Marián Smorada, Jozef Bórik

Abstract

The company's ability to prosper affects not only generating future economic benefits, but also the actual value of the company. Indicators "ex ante" of the financial analysis predicts the „financial health“ of the company in several next periods. Some of these indicators were constructed in earlier years and do not reflect the current state of the economy. The origin of the indicators is another problematic area. Their use in Slovak companies may be largely limited which is also limited in their ability to predict future prosperity of a company. The article deals with the ability of indicators to predict the prosperity of Slovak companies. It states which of the indicators showed reliable results and which less reliable. The conclusion outlines other options to be examined.

Key words

discriminatory ability, ex ante, financial analysis, prediction

Využitie bankrotových modelov v podmienkach Slovenskej republiky

Utilization of bankruptcy models in Slovakia

Adriana Stanková, Denisa Domaracká

Abstract

The current instability of the economic environment is causing many problems for many business entities. Phase of economic expansion, during which the Slovak economic policy has been closer to the standards of developed economies, was interrupted in 2008 by the global crisis and started a phase of economic recession. At present, it is expected of growth and economic recovery in Slovakia. However, the crisis also referred to as the deepest economic crisis since the Great Depression of the 30's of the 20th century, it sparked a wave of questions dealing with the financial analysis and predictions of future financial situation. New possibilities of analysis of the economic situation bring establishment of a register of financial statements in the Slovak Republic and possibility of automated access to its data. On the basis of these data, it is possible to re-examine the timeliness of information about the poor financial situation of businesses by examining indicators of financial analysis or prediction models, for example Altman, IN05.

Key words

Altman, IN05, financial analysis, Register of Financial Statements

Prehľad legislatívnych zmien pri vyplatení dividend
An overview of legislative changes for payment of the dividend

Renáta Stanley

Abstract

Share of profit (dividend) is a type of income from which is under current legislation the obligation to pay insurance contributions to the relevant health insurance company. Legislative changes have occurred not only in the method of calculating the insurance contributions, percentage rate for the payment of insurance contributions, advance payments, but also shift responsibility from the recipient of dividends to the dividend payer. The aim of this paper is to present an overview of legislative changes in relation to the payment of dividends and their impact on business and accounting aspects in accountancy of the entity. For a comprehensive presentation of the issue is important to distinguish the accounting period for which the dividend is compensate, for that reason the paper is divided into three parts by these periods.

Key words

dividend, insurance contributions, the assessment base, accounting period, rate

Aktuálne otázky finančného vykazovania v Republike Srbsko
Particularly topical problems of Financial Statements in Republic Serbia

Vladimír Surový, Vladan Pavlović, Goranka Knežević

Abstract

In 2013 in the Republic of Serbia it has been approved The Act of Accounting. The approved Act is still under discussion in academic and scientific circles. In the present article we deal with questions relating to the contents of the form of the financial statements provided by the Act with a mention on selected issues of concern. At the same time the article also mentions the method of reporting income.

Key words

Act, accounting, financial statements, problems

**Zmeny vo vykazovaní položiek vlastného imania v súvahe podnikateľa
a ich vplyv na finančnú situáciu účtovnej jednotky**

**Changes in presenting of equity items in balance sheet of entrepreneur
and their impact on financial position of accounting entity**

Anna Šlosárová

Abstract

In this contribution we analyse the impact of changes in presenting of equity items in balance sheet of entrepreneur to the evaluation of financial position of accounting entity. For this purpose we first point out briefly the substance of equity and the relation of terms used for equity in Commercial code and Act on accounting. In the next part we compare presentation of equity items according to the requirements of Accounting directive and presentation according to the national legislation of accounting in SR (focusing on financial statements small and big accounting entities) and comparison of vertical structure of balance sheet in the area of presentation of equity items until 30. 12. 2014 and from 31. 12. 2014. We illustrate consequences of these changes in presentation of equity items to the financial position of accounting entity on the calculation and economic interpretation of these ratios: ratio of equity to the total equity and liabilities, structure of equity, return on equity, debt ratio and equity ratio, total liquidity ratio and net working capital. We concluded, new presentation of equity items in balance sheet has an impact on all ratios we calculated, so that user can consider the entity less indebted than it actually is.

Key words

equity, balance sheet, structure of equity, the impact of presentation of equity items to the financial position of accounting entity

**Vyčíslenie prevádzkového zisku z účtovnej závierky zostavenej
podľa slovenských účtovných predpisov**

**Operating Profit Calculation Based on Financial Statements Prepared
According to Slovak Accounting Standards**

Ludovít Šrenkel

Abstract

Term “Operating Profit” plays important role in many modern financial ratios (e.g. EVA, RONA). Application of these indicators in Slovak republic is difficult especially because of its unclear definition. Therefore analytics do not know which items of profit and loss statement they should take into account. The article focuses on the single items of Slovak profit and loss statement, evaluates their relation to operating profit and proposes the equation that serves for operating profit calculation with respect to financial statements prepared according to Slovak accounting standards.

Key words

operating profit, profit and loss statement, NOPAT, NOPLAT

Reforma vykazovania lízingov

Reform of Leasing Reporting

Miroslava Vašeková

Abstract

For several years, the Boards IASB and FASB are working together on a new standard that would modify the current valid rules and conditions for the recognition of the lease. This is one of the longest-running projects that the Council was opened in order to create a new common framework for reporting leases. The common aim is to eliminate deficiencies that long criticized professionals. Criticism is directed mainly to the possibility of affecting the conditions that play a key role in the classification of leases to finance leases and operating leases, which ultimately affects the information provided by financial statements. Dates of adoption of the new standard was announced as a couple, but so far failed to successfully counsel to complete the project. The latest information say about the final phase of the process of preparing new common standards and announced the date of its receipt of the second half of 2015. In this article we will focus on analysing the convergence process and the proposed amendments, which should lead to the adoption of the new common standards and those put in place new rules reporting of leases.

Key words

Leasing, Convergence Process, the New Standard for Lease

3. sekcia

3rd Section

**Aplikácia štatistických a aktuárskych vied
v sociálno-ekonomickej oblasti**

**Application of statistical and actuarial sciences
in social-economic area**

Analýza vplyvu vekových skupín na zmenu strednej dĺžky života pri narodení **Analysis of Age-groups Contributing to Changes in Life Expectancy at Birth**

Soňa Coss

Abstract

Life expectancy at birth is the basic and most important indicator of mortality tables. It is a synthetic indicator that provides information on mortality level, as well as the health and living standards in the country. With a wide content capability and easy accessibility is the main indicator, which is used for sex differences mortality analysis and its changes over time.

Improving of mortality in different age groups does not reflect life expectancy equally. Decomposition of this indicator allows detailed analysis of the changes during the analyzed period. It is an approach that simultaneously takes into account the age structure of deaths in population and the changes in mortality intensity during the period. We use it to identify age groups of men and women who have main contribution to the life expectancy at birth improvement.

Key words

Life expectancy at birth, age-groups contributions, mortality changes

Softvérové techniky výpočtu rozdelenia celkovej výšky škody v individuálnom modeli rizika a ich praktická realizácia

Software techniques for calculate aggregate claims in individual risk model and its practical realization

Jozef Fecencko, Anna Strešňáková

Abstract

The paper outlined forming method of approximate probability generating function of individual risk model if the portfolio of insurance contracts is enough large, the distribution of the damage of individual risk is discrete, costs of accidents are independent random variables, if the precise expression of probability generating functions is problem to calculate by reason of inability breadth calculation with software available. This approach could be used even if the random variable - amount of the individual risk of damage should be continuous distribution. In this case we need to discretize continuous probability distributions. This approach can be modified even if they are present in the portfolio of a different distribution of the risk of damage, provided that they are independent.

Key words

Individual risk model, Aggregate claims, Probability distribution function, open source system Maxima, fast Fourier transformation

Analýza počtu vzniknutých podnikov na Slovensku
Analysis of the number of birth enterprises in Slovakia

Ľubica Hurbánková

Abstract

The paper deals with the analysis of selected business demography indicators. The aim of this paper is to analyse the trend and structure of number of birth enterprises in Slovakia in years 2008 – 2013. The total trend of indicator is analysed in the paper, structure according to economic activities (SK NACE Rev. 2) and regions. Characteristics of time series analysis are used for trend analysis. Changes in structure are viewed by using the Suslov's coefficient of similarity of structures. The aim is to find out, if the structure of the number of birth enterprises has changed in particular sections of classification of economic activities and in particular regions of Slovakia.

Keywords

birth enterprises, Suslov coefficient of similarity of structures, SK NACE Rev. 2

Blackov model oceňovania opcií

Black option pricing model

Andrea Kaderová, František Slaninka

Abstract

In this paper we introduce how to calculate the price of bonds in case of a special type of bonds, bonds with embedded options. In determining option premium in this case you can not use the Black-Scholes option pricing model. Therefore make use of the Black model. Option pricing for this model assumes replacement option on bond and option on forward price of bond.

Key words

Bond, Embedded option, Interest rate, Black model

Sekuritizačný prístup k prenosu rizika dlhovekosti

The Securitization Approach to Longevity Risk

Daniel Komadel, Ľudovít Pinda

Abstract

The catastrophic risk has been mostly associated with non-life insurance. The recent research has proven its existence within the life branch of insurance industry. From the insurer's perspective, longevity satisfies the criterion of a catastrophe – it is a risk with high correlation among the insureds. Such a risk is difficult to cover by standard insurance techniques. Thus, the insurer is willing to transfer it to capital market using employing a securitization instrument. This paper focuses on the potential of a CAT bond as a longevity risk transfer tool. The bond structure analysis is focused on trigger selection. The mathematical framework is demonstrated on the solved numerical example using historical Slovak data.

Key words

insurance, securitization, CAT bond, longevity

Možnosti bayesovskej štatistiky

pri odhade niektorých parametrov v neživotnom poistení

The Possibility of Using Bayesian Statistics

in Estimation of some Parameters in Non-life Insurance

Eva Kotlebová

Abstract

Bayesian statistics is a useful alternative to the classical statistical inference in the case of existence of another information (besides the sample data), which may be included into analysis. In non-life insurance, some older data, or, if available, some information from similar risks can be used for estimation of important parameters.

The article deals with the point estimation of two parameters: probability of insurance event and a number of insurance events. In bayesian statistics, so-called conjugate families are standardly used; they allow for making use of several kind of information in such way that takes into account quantity and a value of input information.

In the article, the mean square error as a criterion of point estimation's quality is used. By means of detection of some deeper relations among variables in conjugate families, the algorithm for assignment such point estimation of the two mentioned parameters was developed, that has smaller mean square error than the classical point estimation at interval of possible values of estimated parameter, that was specified in advance.

Key words

Bayesian estimation, conjugate family, mean square error, prior distribution

Využitie metód viackriteriálneho hodnotenia pri analýze uplatnenia absolventov stredných a vysokých škôl

Use of multicriteria evaluation methods in analysis of success of graduates of secondary schools and universities

Ivan Láska

Abstract

Relevant indicators on success of graduates in the labor market are necessary for effective decision making by decision-makers. With more information available, there is growing importance of synthesis databases from different sources to provide comprehensive evaluation of educational system. This comprehensive evaluation has not been carried out yet in Slovakia. Evaluation of success of graduates separately by individual partial factors leads to inconsistent and contradictory results which can not be considered comprehensive. The paper deals with possibilities of application of multicriteria evaluation methods for the analysis of success of graduates on labor market.

Key words

success_of_graduates, integral_indicator, multicriteria_evaluation

Vplyv rizika dlhovekosti na výšku technických rezerv

Impact of the longevity risk on the technical reserves

Jana Mihalechová, Barbora Simanová

Abstract

Life insurance company has an obligation to constitute reserves in an amount allowing to immediately fulfill its liabilities. This paper focuses on the derivation of formula needed to calculate a life annuity from Pillar II and the calculation of reserves for such annuities. Since the life annuities are long-term, the conditions set at the outset may change, which might lead to situation that the amount of reserves is insufficient. The aim of this paper is therefore to analyze risk material for this type of insurance products - longevity risk. As one of mortality risk it assumes that the death rates of insured people are lower than expected mortality for the population from mortality tables.

Keywords

Pillar II, life annuity, longevity risk, reserves, the adequacy of the technical reserves

Súčasný stav bonus – malus systémov v poistení motorových vozidiel na Slovensku

The current state of bonus - malus systems in motor insurance in Slovakia

Martin Pinda

Abstract

Motor insurance is one of the most important segments of the insurance market. It is important for insurance companies to offer insurance so that the insurance market competitive and at the same time must maintain its solvency. This gave rise to a bonus - malus system, which is a bonus agreements forwarded discount on the basic premium for history of incidents and bonus malus means the opposite, and the premium on the basic premium, unless specified conditions are met insurance. Motor insurance records high frequency losses, it consists in large part of their portfolios of insurance companies and that means high income premium to the insurance company and also a high amount of payment of insurance claims. The paper presents various bonus - malus systems of insurance companies that provide motor insurance in the Slovak insurance market as well as comparison of some selected systems.

Key words

Bonus, malus, Motor Insurance

Vplyv štrukturálnej zmeny na výsledky prognóz určených modelmi ARIMA

Impact of the Structural Change to the Results of Forecast Determined by the ARIMA Models

Eva Rublíková

Abstract

Labour market is very dynamic system with economically active and non active persons. Flows of persons from one state to another one are measured by means of flows. In our submission we would like to analyze outflow rate, i.e. aggregated probability to be re-employed. Development of outflow rate is analyzed on monthly time series from January 2001 till May 2015, during which we will separate whether time series is seasonally adjusted or not. The aim of the paper is to find out by means of Chow tests how therecognized structural change given by the economic crises would influence the estimated parameters.

Key words

outflow rate, SARIMA model, Chow stability tests

Systém dôchodkového poistenia v SR

System of Pension insurance in SR

Zsolt Simonka, Lea Škrovánková

Abstract

The aim of this paper is definition of the current pension system in the Slovak Republic and its implementation in practice through the three pillars of the pension system. This paper describes theoretically the problem of Slovak pension reform and the analysis of actuarial calculations. The current government has finally had the courage to reform it. The first and perhaps most painful step for most people has been to increase the retirement age. The second stage of the reform involves the setting up of a new three-pillar pension system. The first pillar is the current pay-as-you-go scheme, the second pillar takes the form of personal savings accounts. New entrants to the workforce will have their pension contributions, including those made by their employer, split evenly between these first two pillars. The government envisages that five or six management companies will be set up. At retirement, each person will use the money accumulated in his or her account to buy an annuity from an insurance company, to add to the pension from the first pillar in a new pension system.

Key words

pension, pension scheme, pay-as-you-go financing, funding financing, actuarial formulas

Základný stochastický aparát na modelovanie technických rezerv poisťovne

The basic stochastic model for the estimation of technical provisions of insurance

Ľubomír Siviček

Abstract

Deterministic methods are still dominant in daily work of the practitioner actuaries due to their simple using, but nowadays they are becoming as the base for the more sophisticated models, which are able to provide more statistics information. The stochastic model, which will be presented in this paper is based on the well-known Chain-ladder model, therefore the estimate of the reserves is the similar for both, the Chain-ladder model and for the bootstrap model.

Key words:

Chain-ladder model, bootstrap model, claim payments, the best estimate of the reserves

Alternatívny prístup k odhadom pravdepodobností a jeho aplikácia

An alternative approach to probability assessment and its application

Katarína Sušienková

Abstract

When solving problems in economic practice it is often necessary to estimate the likelihood that there may be different possible outcomes of uncertain events. A common problem is a lack of data on which it would be possible to implement these estimates. One possible solution is to use an alternative approach to the theory and probability estimates - School subjective probability. This approach makes use of the knowledge of experts, while it can be used in accordance with the generally accepted theory of probability. In this paper we introduce the theoretical basis of this approach, axiomatic foundation of the theory of probability and subjective valuation technique subjective probabilities. Application estimating subjective probabilities explored on the issue of natural conditions which drive the production company.

Key words

Subjective probability, axiomatic definition of probability, probabilistic relation, methods of probability assessment

Miera salda vzniku podnikov v SR v rokoch 2007 až 2013

Net change in enterprise birth rate in the SR from 2007 to 2013

Erik Šoltés, Tatiana Šoltésová

Abstract

The aim of the article is to analyse direct impact of demographic events of enterprises such as their birth and death on a number of active enterprises in the SR in 2007-2013 and to perform regional comparisons among individual regions in the SR. For the purpose of cross-sectional and longitudinal comparison this relative rate is used in the article: net change in enterprise birth rate. Our own analyses were performed on the Business demography 2007 to 2013 databases which were provided to us by the Statistical Office of the SR. We focused specifically on the quantification of the impact of the temporal and the spatial dimension on the net change in enterprise birth rate using the GLM procedure in SAS Enterprise Guide application. This procedure smartly connects multivariate analysis of variance and regression analysis. As a result, we could better uncover and quantify regional disparities and differences in individual years of the monitored time period.

Key words

Business demography, Birth rate of enterprises, Death rate of enterprises, Net change in enterprise birth rate, GLM procedure

Ako súvisí pravdivosť a výpovedná hodnota volebných preferencií s validitou dotazníkových akcií

How does the veracity and value of voting preferences and the validity of an inquiry

Lubomír Turňa

Abstract

This paper considers the validity of an inquiry. The validity of an inquiry does not depend only work with the respondents, as well as the procedure of processing the data obtained, depend upon the method of processing of the data. It is often evident influence on the respondents with insertion of the atmosphere on potential voters with the aim of creating the next desired background of community pre-election climate and often deliberately false data evaluation questionnaire filled. However, even with a reputable led an inquiry you must be aware that almost no questionnaire survey is not conducted "in the newly born sterile and virgin ratios and conditions" environment of space and time. Almost always have "something, somewhere and sometime" already. Sometimes, especially in verifying the knowledge of students and pupils also have their own, in mutual succession, especially FAQs mutual interrelatedness content. Therefore evaluate the questionnaire without conditions, without the conditional probability, taking into account existing influence is not at all correct. In addition, despite the possible pursuit of rigorous formulation of individual queries can be strictness understanding of questions by respondents, and therefore responses to not only apparent and almost always carries elements of vagueness and uncertainty. Even, even if there are questions, the answers to very simple "yes - no", which can also often lead to diffuse expression of meaning and value contains questions and answers on it and also a necessity for the "weighting", if necessary. also to the use of fuzzy evaluation.

Key words

Validity, questionnaire, election preference.

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**

Minimalizácia emisií CO₂ v rozvozných úlohách

Minimization CO₂ Emissions in Capacited Vehicle Routing Problems

Ivan Brezina

Abstract

The paper presents the possibilities of modern modifications of traditional approaches to minimizing fuel consumption and reducing CO₂ gas emissions into the atmosphere. The paper is thus not geared to only the economic aspects of optimizing the transport of goods but also the environmental aspect, which is currently becoming more accentuated in the activities of any company. The aim of the assignment EVRP-VC (Emissions Vehicle Routing Problem - Category Vehicle) is to minimize fuel consumption, CO₂ emissions respectively instead of driving distance.

Key words

Capacited Vehicle Routing Problems, Emissions Vehicle Routing Problem

Použitie Optimization Toolbox v MatLabe

Using the MatLab Optimization Toolbox

Zuzana Čičková

Abstract

Solving of optimization problems and their practical application is necessarily associated with the use of adequate software tools for optimization calculations. This paper is focused on possible options of solving optimization problems by MatLab using the module Optimization Toolbox.

Key words

MatLab, Optimization Toolbox, Linear Programming

Vplyv ceny na rozhodovanie cestujúcich v železničnej doprave

The influence of price to travelers' in railroad transport acting

Juraj Dubovec, Lucia Pančíková

Abstract

In this article is described the influence of price to travelers' in railroad transport acting. Acting is an activity of travelers which permit to choose a way of transport due to decision among some alternatives. Acting arises from the need of travelers to make "the best choice" from all possible alternatives in the scope of choice possibilities. Each traveler disposes of sources which this one is owning. Sources and their structure determines the position of travelers in social space. Extreme form of price regulation (traveling free of charge) influences acting of market participants. Deforms calculation, being an essential idea because Money offer us common neutral denominator of all ordinary incomparable needs of different travelers.

Key words

Transport, traveler, price, regulation, acting

Analýza rovnováhy síťových systémů

Equilibrium analysis of network systems

Petr Fiala

Abstract

Many of today's systems are characterized by a network structure. The paper considers a situation where a number of agents are connected in some network relationship. The applications are quite wide and varied. Game theory is a very powerful framework for studying decision making problems, involving a group of agents. Allocation games examine the allocation of value among agents connected by a network. Agents can be seen acting independently and willing to selfishly maximize their utility. Allocation games model the problem of maximizing network utility from the perspective of distributed non-cooperative agents. Many challenging questions arise when one seeks to design a network in such a way so as to optimize a given utility measure. Approaches for searching Nash equilibrium are presented. We provide results with respect to equilibrium existence, computation, convergence, efficiency and quality.

Key words

Networks, Game theory, Allocation, Nash equilibrium

Priestorová analýza inovačných zhlukov: Prípadová štúdia regiónov EÚ

Spatial Analysis of Innovative Clusters: The case study of EU regions

Andrea Furková

Abstract

This paper deals with spatial clustering of innovative activity across 245 NUTS2 European Union regions in 2011. The patent applications were chosen as a proxy for innovative activity at the European Patent Office. In order to answer the main question whether the innovative activity performed in one region may be associated with the innovative activity in neighbouring regions were used global and local versions of Moran I statistics. We identified 88 regions with positive spatial association which means that similar values of patent applications tend to cluster in space. Moreover, based on the outcomes of bivariate Moran's I statistics, we found out that innovative input indicators such as research and development expenditure and human resources in research and development are spatially correlated with patent applications.

Key words

Moran's I , Moranov rozptylový diagram, Spatial Analysis, Research and Development, Patents

Vybrané poznatky z modelovania vývoja ceny bývania na Slovensku

Selected findings from the modeling of housing prices in Slovakia

Ján Haluška, Mikuláš Cár

Abstract

The current level of knowledge and practical experience abroad show that various approaches can be applied to the analysis of development of housing prices. They also include a sophisticated approach based on principle of co-integration leading to the construction of the error correction model. The aim of this paper is to present the results of this approach to the analysis and modeling of real estate prices in Slovakia and assess its possibilities and limitations.

Key words

Housing price, econometric error correction model, principle of co-integration

Trojrozmerný model DCC s aplikáciou na výmenné kurzy

Trivariate DCC Model with Application to Exchange Rates

Michaela Chocholatá

Abstract

This paper deals with the estimation of the trivariate dynamic conditional correlation DCC model with application to exchange rates. DCC model belongs to the multivariate ARCH (Autoregressive Conditional Heteroskedasticity)-class models. Present state of problem as well as the used methodology are briefly presented in the paper. In the empirical part of the paper it follows the estimation of trivariate DCC model in the software EViews for the daily exchange rate returns of EUR/USD, GBP/USD and JPY/USD. The graphical illustration of dynamic conditional correlations indicating the linkages between analysed exchange rates returns is also included in the paper. The highest values of dynamic conditional correlation oscillating in average around 0.596 were obtained for the pair EUR/USD and GBP/USD.

Key words

exchange rate, ARCH, DCC,

Sociálne postavenie krajov slovenskej ekonomiky a ich vývoj

The social status of the regions of the Slovak economy and its development

Zlatica Ivaničová

Abstract

The Slovak economy within the European Monetary Union (EMU) is usually assessed positively. Due to the fact that the Slovak economy is already eleven years a member of the European Union and five years in EMU, as well as the rapid growth of the automobile industry, strongly influenced the growth of the economy compared to other EMU countries. Unfortunately social policy and thus increase the standard of living in the Slovak economy compared to the EMU lags. The biggest differences compared to the EMU are in the social status of individual regions, high unemployment, wage and pension policy and social security. Using methods of multidimensional evaluation of alternatives will be presented in this paper development of selected basic economic and social-economic indicators of the regions Slovak economy in years 2004, 2009 and 2013. Specifically, using Ward's method, which is one of the most used methods of hierarchical clustering will be possible to evaluate the dynamics of development of individual regions as well as evaluation the convergence process respectively divergence of their economic and living standards.

Key words

Economic and social indicators, cluster analysis, Euklidean distance, Ward's method , Lance/Williams algorithm, convergence and divergence

Efficiency analysis in education – a multi-period DEA model

Josef Jablonský

Abstract

The paper aims at production systems with decision making units described by their inputs and outputs in several consecutive periods. The paper presents (Park and Park, 2009) multi-period DEA model that is oriented on the “best” period of the unit under evaluation only. This aim of this paper is to overcome the disadvantage of this model and formulate new models of this class that allow evaluation the efficiency of decision making units within the whole production chain. The presented efficiency and super-efficiency multi-period DEA models are illustrated on a case study. The study consists in analysis of research and teaching performance of 19 Czech economic faculties in four years period. The model considers two inputs (number of academic employees and labour costs) and two outputs for teaching efficiency (number of students and number of graduated). Research efficiency is expressed using the number of publications in various important categories and the number of so called RIV points that describe the quality of publications.

Key words

Data envelopment analysis, Multi-period model, Efficiency, Higher education

Bank restructuring process: marginal effects in a multivariate model

Juan Antonio Jimber Del Rio, Daniel Caridad López Del Rio,
Nuria Ceular Villamandos

Abstract

In the nineties in the financial sector there was a process of mergers and acquisitions across Europe. This trend started in the United States in the eighties, extending to the European continent. The study provides an analysis of the variables that have a marginal effect on the probability of participating in a financial restructuring process. Used models with categorical endogenous variable to represent the different situations of absorption considered. In the modeling process have been used the econometric techniques of selecting variable, and the interpretability of these financial.

Key words

merged, absorbent, absorbed, marginal effects, nationalized

Analýza elasticít pomocou takmer ideálneho dopytového systému

The Analysis of Elasticities Using the Almost Ideal Demand System

Brian König

Abstract

The aim of the paper is to estimate the expenditure and price elasticity through almost ideal demand system AIDS. Price and income elasticity can be used on the analysis of the changes in prices or incomes on consumer behavior, analysis of inequalities in consumption patterns of different income groups, respectively, or in the process of examining the effects of changes in value added tax on public budgets. In order to estimate the demand system data drawn from household budget surveys SR was used.

Key words

Price and Expenditure elasticities, Demand system, Model AIDS

Empirická evidencia vplyvu monetárnej politiky na ekonomiku SR

Empirical evidence of the impact of monetary policy on the SR Economy

Patrik Kupkovič

Abstract

This paper focuses on the basic research in the field of empirical evidence on effects of monetary policy (monetary shocks) on the SR economy. In particular we examine the fundamental relationship between interest rates, money, output and inflation. We explore and compare basic facts about long-term and short-term relationships (interest rates, money, output, inflation) with the developed economies that will serve to evaluate and compare theoretical models. Recent literature as fundamental tool for empirical evidence of short-term impact monetary policy (monetary shock) on real economy uses structural VAR methodology. This approach is also used in our contribution. Examining the impact of monetary policy (monetary shock) in SR as a member of the Eurozone is unquestionable importance in theoretical modeling of structure of SR economy. The results of this paper qualitatively correspond to the results in the literature concerning the effects of monetary shock.

Key words

Monetary Policy, empirical evidence, structural VAR model, effects of monetary shock

Analýza trhu práce – teoretické východiská

Analysis of Labour Market – Theoretical Background

Martin Lukáčik

Abstract

“The labour market is fictive market, on which there is traded with production factor – labour. The demand for work is determined by companies, enterprises and other manufacturers. It depends on other factors of production, particularly the size of the capital and the used technology. Labour supply generates the working-age population, which consists of all people who work actively, but also the unemployed. The labour market is governed by and acting on other markets, but is also strongly affected by many external interventions, not by the State or by the trade unions. ”

The simplified view of the functioning of this important part of the economy may encourage the view that all the determinants and interactions within this market are simply describable and analysable. The reality is rather the opposite. The aim of this contribution is to describe the theoretical basis of the analysis of the labour market which should not be neglected.

Key words

Labour Market, Employees, Employers, Labour Unions, Wages, Regulations

Rozdelenie priora a posteriora pri bayesovských odhadoch v ekonometrii

Prior and Posterior Distribution of Bayesian Estimates in Econometrics

Martin Lukáčik, Adriana Lukáčiková, Karol Szomolányi

Abstract

Bayesian estimation represents connection of the calibration – priors and maximum likelihood function, thus linking model and data using Bayes rule. The use of this type of parameter estimation has several advantages compared with calibration, GMM method or different utilizing of functions of maximum likelihood. The main advantage is that it allows estimation of the model as a whole and the vector of estimated parameters hasn't the form of point estimates, but contains the entire posterior. Compared to calibration it has the advantage that the applied priori information serve only as a weight of the likelihood function, and therefore do not transfer the random error from data to the estimation of parameters. It also can assist in deciding which model best describes the data compared with the other variants. The main drawback of which is faulted Bayesian estimation is subjective choice priori information.

Key words

Gravitačný model odhadu dopytu v mestskej hromadnej doprave
Estimation of municipal public transport demand using gravity model

Tomáš Majer, Stanislav Palúch

Abstract

The paper presents a mathematical model to estimate the size of the transport demand for municipal public transport. The model uses the known numbers of passengers embarking and disembarking at various bus stops and bus stops locations (distances between them) in the transport network. The model output is OD matrix indicating the number of passengers travelling between stops. This model is verified on the real data acquired by the full traffic survey on public transport Martin - Vrútky conducted in March 2006.

Key words

Traffic survey, OD matrix, gravity model

Riešenie viackriteriálnej úlohy TSP
Solution of multicriterial TSP problem

Lucia Mieresová

Abstract

The aim of this article is solution of multicriterial circular tasks. Despite the fact that this area is in publications less common than classic cases of circular tasks (one-criterial), we can certainly say that for solving real-world cases or cases from practice, when we try to get the best solution, based on various factors, than is preferable to use methods which in finding of the best solution takes into account multiple objectives.

This article is based on TSP problem. For case study, we will use 15-nodes transport network. Each of these nodes must be visited. In the real world, these nodes may represent warehouses, retail, collection points, etc. The specified case will be in contrast with the classical problem solved in terms of multicriterial optimization.

The first chapter is dedicated to the article introduction. The next chapter describes the classical TSP and circular tasks with multiple criteria. Specification of solved problem and its mathematical formulation is defined in the third chapter. The task is solved in system GAMS, which is described in the fourth chapter and the fifth chapter interprets the results. The final chapter presents a summary of the issues and of the article.

Key words

Multicriterial Task, Circular Task, TSP problem

SúčasnÉ možnosti zist'ovania prúdov a požiadaviek cestujúcich **Contemporary possibilities for assessment of passenger flows and demand**

Stanislav Palúch, Tomáš Majer

Abstract

The paper presents contemporary possibilities of flow and demand assessment of passengers travelling in rural or regional passenger transport. Gravity and entropy models for OD matrix assessment are presented. Several modern technical means of transportation flows determining are mentioned. The article is concerned with possibilities of making use from GSM networks for the purpose of traffic survey. Papers (BITRE, 2014) and (Steenbruggen, Borzacchiello, Nijkamp, Scholten, 2013) were essential source for this article.

Key words

OD matrix, transport survey, GSM network, gravity model, entropy model

Aplikácia Kalmanových modelov pre sezónne dáta verejnej dopravy **Application of Kalman models for seasonal data in public transport**

Lucia Pančíková, Juraj Dubovec

Abstract

The paper deals with time series modelling and forecasting using the method called Kalman's filter. The selected method was chosen due to its ability to model seasonal data. Theoretical assumptions of this method are implemented, verified and summarized on real data – the number of transported passengers in public transport. The modelling and forecasting was realized in Open-source product called R. Using the R software, authors try to emphasize the fact that even the forecasting process of more complex problems can be done using the open-source software.

Key words

Prediction, seasonality, Kalman's filtering, R, public transport

Stanovenie očakávaného výnosu aktíva

Determination of the expected return on assets

Juraj Pekár

Abstract

The basis of portfolio theory is using the criteria of the expected return and risk in the selection of the investment strategy. Markowitz provided the amount of expected return as the mean value in 1952. CAPM model is designated as the base model determining the expected return. Next, it was analyzed and disseminated. In addition to mentioned model, Ross developed the Arbitrage Pricing Theory, which is considered as an alternative to the model of valuation of assets. A new approach aimed to measuring the expected return was indicated by authors Black and Litterman. Currently, the attention is focused on solvability of portfolio selecting problems, while Rachev define the characteristics that have to be met by the expected rate of return. The last part deals with most commonly used measure of the expected return in portfolio selection models.

Key words

Rate of Return, Portfolio Theory

Odhad počtu cestujúcich na linkách MHD prostredníctvom lokalizácie mobilných telefónov

Estimate of number of urban transport passengers by mobile phones location

Štefan Peško

Abstract

Data from mobile operators allow the localization of public transport passengers which offers the possibility of replacement of expensive transport surveys. In this paper we developed the procedure that allows to decide whether a mobile really belongs to the traveller on public transport on monitored lines. If yes, to such passenger a probabilistic embarking and disembarking stop of a line is assigned. The presented model enables not only the calculation of flows of passengers on network sections but also OD matrix between stops of network.

Key words

Traffic survey, location of passenger's mobile, lines, urban transport, OD matrix.

Environmentálny model zásob

Environmental inventory model

Marian Reiff

Abstract

Classical inventory models in most of the cases analyze inventory parameters in order to minimize the total cost associated with surplus, deficit and ordering of inventory. Inventory has influence on the environment, such as the intensity of freight transport, waste production, energy consumption, seizure of arable land etc. The paper presents environmental inventory model that deals beside classical cost components with environmental costs such as greenhouse gas emissions, and waste.

Key words

Inventory Management, Greenhouse Gases Emission

Verifikácia modelu panelových dát

The model verification of panel data

Kvetoslava Surmanová

Abstract

The panel data econometrics are in a separate area of econometric analysis. Using panel data for the creation of econometric models it may be inspected at the same time in the structure and dynamics of economic phenomena studied. As with the analysis of time series or cross-sectional data verification model has an irreplaceable role, and should therefore be the model panel data to assess in terms of statistical significance of the model. This paper focuses mainly on the possibility of testing and fulfillment the assumptions of the model, namely the absence of autocorrelation and stationarity.

Key words

Panel data, model, stationarity, autocorrelation

**Model reálneho hospodárskeho cyklu malej otvorenej ekonomiky
systémom dvoch rovníc**

**Small Open Economy Real Business Cycle Model
in the System of Two Equations**

Karol Szomolányi

Abstract

Solving real business cycle models is in general not trivial. Using model simulations one can explain the higher share of business cycle the higher effect of supply and term shocks there are in the economy. Undergraduate university student can easily understand many observed business cycle facts by a model simplifying. We can simplify the model considering a two-dimensional space (present, future). The model competes to the traditional short-run macroeconomic Keynes models in common used in undergraduate macroeconomics. We argue that supply and term shocks are very influential in the small open economy integrated to the monetary union. We consider simplified small open economy real business cycle model for effective tool in the Slovak undergraduate macroeconomics.

Key words

small open economy real business cycle model, two equation system, undergraduate macroeconomics
