JOURNAL

of Applied Economic Sciences

Quarterly Journal

JAES

Journal of Applied Economic Sciences

Volume IV
Issue 3(9)

Fall 2009

Journal

of Applied Economic Sciences

*J*ournal of *A*pplied *E*conomic Sciences

*J*ournal of *A*pplied *E*conomic **S**cience is a young economics and interdisciplinary research journal, aimed to publish articles and papers that should contribute to the development of both the theory and practice in the field of Economic Sciences.

The journal seeks to promote the best papers and researches in management, finance, accounting, marketing, informatics, decision/making theory, mathematical modelling, expert systems, decision system support, and knowledge representation. *This topic may include the fields indicated above but are not limited to these.*

*J*ournal of *A*pplied *E*conomic **S**ciences be appeals for experienced and junior researchers, who are interested in one or more of the diverse areas covered by the journal. It is currently published quarterly with three general issues in Winter, Spring, Summer and a special one, in Fall.

The special issue contains papers selected from the **International Conference** organized by the **European Research Centre of Managerial Studies in Business Administration** (www.cesmaa.uv.ro) and **Faculty** of **Financial Management Accounting Craiova** in each October of every academic year. There will prevail the papers containing case studies as well as those papers which bring something new in the field. The selection will be made achieved by:

- Conference Session Chairs
- Editorial Board Members

*J*ournal of *A*pplied *E*conomic **S**cience is indexed in CEEOL www.ceeol.org, EBSCO www.ebsco.com, RePEc www.repec.org and in IndexCopernicus www.indexcopernicus.com databases.

The journal will be available on-line and will be also being distributed to several universities, research institutes and libraries in Romania and abroad. To subscribe to this journal and receive the on-line/printed version, please send a request directly to jaes_secretary@yahoo.com

Journal of Applied Economic Sciences

Table of Contents

GROWTH AND COMPETITION IN A MODEL OF HUMAN CAPITAL ACCUMULATION AND RESEARCH

Dominique **Bianco**
University of Nice-Sophia-Antipolis, GREDEG (CNRS), **France**
dominique.bianco@gredeg.cnrs.fr

Abstract:

The aim of this paper is to analyze the relationship between competition and growth in a model of human capital accumulation and research by disentangling the monopolistic mark-up in the intermediate goods sector and the returns to specialization in order to have a better measure of competition. We find that the steady-state output growth rate depends on the parameters describing preferences, human capital accumulation technology and R&D activity. We also show that the relationship between competition and growth is inverse U shaped. This result that seems to be in line these empirical results (Aghion and Griffith, (2005)) is explained by the resource allocation effect.

Keywords: endogenous growth, horizontal differentiation, technological change, imperfect competition, human capital

JEL Classification: D43, J24, L16, 031, 041

A STUDY OF QUALITY IN THE PROCESS OF SOFTWARE PRODUCT DEVELOPMENT ACCORDING TO MAINTAINABILITY AND REUSABILITY

Ion **BULIGIU**, Liviu **CIORA**, Andy **ŞTEFĂNESCU**
University of Craiova, **Romania**
Facultaty of Economic and Business Administration
buligiu_ion@yahoo.com

Abstract

Our research indicates the modality by which algorithm modifications imply intervention in modules where expressions are evaluated or selections of elements are performed, the conclusion being the fact that in order to design robust software, a clear definition of the modules is necessary. Thus, the weak module which can be easily modified must be defined and placed so as not to affect other modules through modifications applied to them.

The reusability issue is even more important as the main software producing companies have developed class libraries which reduce programming efforts. It is thus possible to start the realisation of software with personnel no larger than 15 people, but with high qualification and logistical resources. The problem of reusability occurs especially in the interference area. In designing interfaces, graphic elements are dominant, as well as those of information search-find. All this implies the definition of text placement and designing parts of the text which determine actions or operation selection.

The problem of reusability occurs when in new software products conversions, compressions, sorting and optimisations as operations with extremely low proportion in the computing volume must be introduced, but which represent significant consume from the point of view of the programming effort.

Keywords: software products, quality, software maintainability and reusability.

JEL Classification: L86

ESTIMATING CORE INFLATION IN NORWAY

Fabio **DI DIO**, Francesco **FELICI**
Tuscia University of Viterbo, **Italy**
fabiodidio@inwind.it, franceco.felici@tesoro.it

Abstract:

Central banks are continually considering the problem of how to identify which price changes should be considered permanent and which entirely temporary. Indeed, due to the delayed effect that monetary policy uses to put its choices into action, a wrong valuation of the type of inflation can prove extremely costly for the economy and does not produce the desired results. Since price indexes (as CPI) deliver a distorted picture of underlying inflation, it is necessary to devise a more appropriate target for monetary policy. The need to find a good measure for the latter variable becomes more marked when the central bank adopts price stability as the overriding aim of monetary policy.

In this paper we apply the Quah and Vahey (1995) methodology to Norway, oil producing OECD country, and derive measures of core inflation by imposing restrictions from economic theory within the context of a multivariate econometric analysis. To estimate long-term movements of inflation, we present two models that enable the distinction between core and non-core inflation and also between domestic and imported inflation. We conclude that in all the models presented core inflation is a 'prime mover' of inflation.

Keywords: core inflation, monetary policy, Norway

JEL Classification: C51, E52, D58

HOW DARK IS THE NIGHT: THE CONSUMERS' MOOD COPING WITH THE CRISIS. EVIDENCES FROM ISAE CONSUMER SURVEY

Stefania **GABRIELE,** Bianca Maria **MARTELLI,** Michele **RAITANO**
ISAE, Operational Unit Microeconomics;
ISAE, Operational Unit Surveys;
Sapienza Università di Roma, **Italy**
s.gabriele@isae.it b.martelli@isae.it michele.raitano@uniroma1.it

Abstract:

Since 2008 the global economy, following also the financial crisis, is facing a severe decline in economic activity and the economic estimates concerning the first quarter 2009 are even worse. The Italian Consumers Confidence Indicators (CCI), however, after a sharp fall beginning in 2007, is unexpectedly showing some signals of recovery since the end of summer 2008. It seems that the effects of the financial crisis have not influenced Italian consumers yet, as it is documented worldwide.

It is worth sorting out this puzzle. The paper tries to explain these trends starting from the role played by the single elements on which the composite indicator of confidence climate is determined. Then the recent price evolution and its influence on the Italian Consumer Confidence dynamics are investigated. Since end of summer 2008, the sharp inflation slowdown together with nominal wages increase, may have contributed to keep confidence from falling. A further tool for explaining recent CCI dynamics could also be represented by a micro-data analysis of opinions of population sub-groups, because some of these could have been more exposed than others to the crisis. Therefore the paper explores reactions of different consumers segments (e.g. by income, professional status, household composition).

Keywords: consumers' confidence, consumption, survey data.

JEL Classification: C21; D12

GENDER, CORRUPTION AND SUSTAINABLE GROWTH IN TRANSITION COUNTRIES

Julija **MICHAILOVA**
Christian-Albrechts University of Kiel, **Germany**
julija_michailova@yahoo.com
Inna **MELNYKOVSKA**
Kiel Institute for the World Economy, **Germany**
inna.melnykovska@ifw-kiel.de

Abstract:

Numerous studies have found negative connection between corruption level and economic development. At the same time few of them demonstrate correlation between women representation in politics and corruption level. This paper analyzes correlation between gender and corruption for a specific sample of countries, sharing common cultural and historical legacy – transition countries. Relationship between higher number of women in parliament and decreasing level of corruption is supported by data. Relations with other forms of women social activity were found to be insignificant. Contribution of this paper to the research literature on this topic is twofold. First analysis on gender and corruption in transition economies has previously not been done. Second, this study could also be used for the practical policies on fighting corruption by application of gender quotas.

Keywords: gender, corruption, growth, transition countries.

JEL Classification: J16, H11; K42; O10

EXCHANGE RATE PASS-THROUGH TO DOMESTIC PRICES IN THE CENTRAL EUROPEAN COUNTRIES

Rajmund **MIRDALA**
Technical University of Kosice, **Slovakia**
Faculty of Economics
rajmund.mirdala@tuke.sk

Abstract:

Exchange rate plays an important role in transmitting pressures from the external shocks to the domestic economy. Development of inflation in the domestic economy is significantly determined by the ability of exchange rate to transmit external price related pressures to the domestic market. Considering the new EU member countries obligation to adopt euro the loss of the monetary sovereignty should be analyzed not only in the view of the direct positive and negative effects of this decision but also in the view of many indirect effects. While the exchange rates of majority of the EMU candidate countries are strongly affected by the euro exchange rate on the international markets there is still room for them to float partially reflecting changes in the national economic development. Ability of the exchange rate to transfer external shocks to the national economy remains one of the most discussed areas relating to the current stage of the monetary integration process in the European single market.

In the paper we analyze the ability of the exchange rate to weaken or eventually to strengthen the transmission of the external inflation pressures to the national economy in the Czech Republic, Hungary, Poland and the Slovak republic. In order to meet this objective we estimate a vector autoregression (VAR) model correctly identified by the Cholesky decomposition of innovations that allows us to identify structural shocks hitting the model. Variance decomposition and impulse-response functions are computed in order to estimate the exchange rate pass-through from the foreign prices of import to the domestic consumer price indexes in the Visegrad countries. Ordering of the endogenous variables in the model is also considered allowing us to check the robustness of the empirical results.

Keywords: exchange rate, inflation, VAR, Cholesky decomposition, variance decomposition, impulse-response function.

JEL Classification: C32, E52

FORECASTING FINANCIAL INDEXES WITH MODEL OF COMPOSITE EVENTS INFLUENCE

Sergey **SVESHNIKOV** and Victor **BOCHARNIKOV**
Consulting group INEX-FT, Kiev, **Ukraine**
sveshnikosv@yandex.ru, bocharnikovvp@yandex.ru

Abstract

In this article we propose the model for the forecast of various financial indexes: stock markets indexes; currency exchange rates; crediting rates. Behaviour of financial indexes depends on psychological sentiments of players (investors, traders) and their inclination to buy or sell financial tools. We have made the supposition that political, economical, financial and other events are preconditions for formation of the future psychological sentiments of players. Therefore, for forecasting financial indexes we estimate influence of all topical events on the future inclination of players to buy or sell. The proposed model calculates the composite influence of events on the basis of estimations of influence direction, influence force, influence time, events importance and confidence to the information about events. The model fulfils the calculations with help of fuzzy integral Sugeno (1972). We have used this model for forecasting indexes of various economical natures: Ukrainian stock index (PFTS); exchange rate EUR/USD; crediting rate KievPrime 1M and quotations of Eurobonds Ukraine 2015. We also have estimated errors and horizons of forecasts.

Keywords: forecasting model; financial index; events influence; fuzzy integral; fuzzy measure.

JEL Classification: C63, C65, D81, G11, G14

NEEDS SEEDED STRATEGIES

David **WARD**
JRC-Ispra, IPSC, Traceability and Vulnerability Assessment Unit, **Italy**
david.ward@jrc.ec.europa.eu

Abstract

This paper addresses the issue of developing strategies starting from the identification and comprehension of true consumer needs. Needs and opportunities are linked to markets, benefits and strategies through a specific 3D model based on Maslow's pyramid. A further model, denoted the PIE (Persons, Institutions and Enterprises), also contextualises needs seeded strategies also for institutions.

Furthermore the paper builds on declared and latent needs and the author shows how both can live together, or separately, irrespective whether or not one sees them from the demand or supply side. The argument is that demand strategies are essentially based on declared needs and are 'red ocean' in nature while supply strategies pace consumers by hitting latent needs and produce 'blue ocean' favoured strategies.

It is argued that current strategy frameworks e.g. Porter's competitive advantage, Wernerfelt's resource-based strategy and Hax and Wilde's integrated competitive advantage models, need to pace rather than chase the consumer. Strategies are considered as being the outcome of strategic choices that enterprises need to answer in order to stay or become (more) competitive. If an enterprise is to build its strategy on satisfying consumer needs then it is necessary to view resources from two perspectives, namely customers and assets. For each one of these two resources three possible scenarios are discussed namely that the resources are Insufficient, Limited or Abundant

Keywords: strategy, blue-ocean, red-ocean, declared, latent, needs.

JEL Classification: A2, L2, M3, M30

FUTURE MOTIVATION IN CONSTRUCTION SAFETY KNOWLEDGE SHARING BY MEANS OF INFORMATION TECHNOLOGY IN HONG KONG

Rita **YI MAN LI**, Sun **WAH POON**
The University of Hong Kong, **Hong Kong**
h0339637@hkusua.hku.hk swpoon@hkucc.hku.hk

Abstract

Constructions accidents have led to many workers in Hong Kong seriously injure or even die every year. Huge sum of money has been spent on compensation by contractors. Lack of safety knowledge is one of the causes behind these accidents. While information technology has become part of the indispensable lives among youngsters and teenagers, it is foreseeable that construction workforce on site in the coming decade will meet certain level of computer skills and knowledge. With the help of information technology, geographical boundary in knowledge sharing among safety officers or relevant stakeholders from all over the world is removed. Faster knowledge sharing is also expected. Knowledge sharing among construction workforce in Hong Kong is still restricted in traditional face-to-face interaction. Use of information technology in construction companies is still piecemeal and limited on daily work communication. This paper aims to study the possible motivation in sharing construction safety knowledge inter and intra construction organizations.
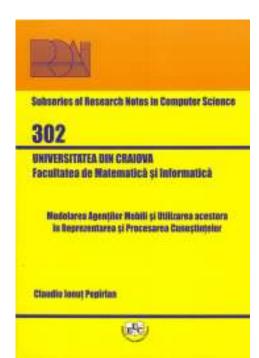
Keywords: motivation, construction safety, knowledge sharing, Hong Kong.

JEL Classification: M15, M12, M53

MOBILE AGENTS MODELING AND THEIR USE TO KNOWLEDGE REPRESENTATION AND PROCESSING

Book Review

Nicolae **ŢĂNDĂREANU**,
University of Craiova*, **Romania***

T*he* term of *Agent* appears in the mid-50s, being proposed by two researchers at MIT, first John McCarthy and then Oliver Selfridge and research in the field know two important stages of development. First started in 1977 and has considered agents act on symbolic reasoning. The second began in the '90s and studied mainly typology of agents and how they can collaborate in the network. There are many applications of mobile agents: monitoring computing resources, information retrieval in client-server architecture, computer network management, electronic commerce, problems authentication, information security and many others.

The research proposed in this volume can be placed in a common area of the mathematics and informatics. First, in this book it is integrated the concept of mobile agent in an algebraic environment of knowledge representation and processing, which is obtained using some concepts of universal algebra. In this work is

studied the mathematical formalism for knowledge representation and processing using the inheritance concept and the result of this approach is materialized in a proper view on the formal description of the multi-agent systems. This approach will lead to a simple and concise theory with applications in various areas: transportation, medicines, Internet, economics, e-learning, etc. That explains the connection with the mathematical field.

In terms of informatics, here are distinguished several areas of research from the volume that are closely related: defining a model of multi-agent system - which involves important notions of Artificial Intelligence, programming mobile agents - which is a relatively new field in computer science, the implementation of mobile agents using the latest software technology (Java 2 Standard Edition, Java 2 Enterprise Edition, Aglets, Middleware Applications / Server: Java Servlets).

Author deals with an original subject, an important element: the development and formalization of new methods for representation of knowledge in mobile agents' vision.

In *Mobile Agents Modeling and Their Use to Knowledge Representation and Processing*, Claudiu Ionuț Popîrlan proposes a knowledge representation model based on inheritance and studies calculability response function for the proposed model. A mobile agent is defined as a software program that can be dispatched from one computer to another, in order to action and interact with another agent. They are not fixed where the system has started to run the program, but can move on different machines in the network. Thus, the system becomes very flexible because the calculations can be made on any machine, through the agents, which can move in order to obtain the resources and values necessary for completing the tasks. The system is able to process the knowledge bases distributed on its servers. For this purpose, there are Query Mobile-Agents (QMA) that are visiting one at a time, all or parts of these servers from whom they require a certain information, that corresponds to the user requirements for whom they work. When an agent totally accumulates the answers for the user's interrogations, it returns and transmits the results.

Following the performed research in the mathematical context of multi-agent system for knowledge representation and processing, is presented the model of knowledge representation based on the inheritance mechanism, named inheritance knowledge base.

A separate section of the book is the result of an ample scientific approach which implements the multi-agent system, defined in previous section, with support provided by the Java programming language and Aglets development package from the IBM Company. Thus is created a toolkit, named MAKPT (Mobile Agents Knowledge Processing Toolkit), which uses mobile agents to process knowledge bases. This toolkit is described from the implementation's perspective and three examples of testing are presented. The important criteria of the application have been considered the easy implementation, functionality and a good running time. A very good computational time has been obtained per each system execution and sophisticated knowledge bases have been represented and processed without increasing the file size.

In the context of using the proposed multi-agent system in the real world problems with experimental results analysis are discussed several aspects. There are presented two usage cases for initial different configurations of the multi-agent system:

▪ Knowledge processing represented by a tree level structure (which is commonly used in knowledge modeling for complex mechanisms assembling). This case describes some experiments for the situation of two agents engaged together in assembling a bicycle from its parts scattered inside a garage. It is proposed an optimization algorithm for mobile agents transfer through the network;

▪ Numerical knowledge representation for 3D surfaces deformation modeling. This case describe some experiments for a 3D elastic model (sailing ship), represented with particles connected with elastic springs. The multi-agent system is used to extract the forces information (internal and external forces) and to change the elastic properties of the model, for a better representation and visualization.

The book is based on a literature to date and reflect the author's research experience. It is a useful tool for those interested in issues of mobile agents and can be found in use, even, and specialists in the field - who can find new ideas.

In conclusion, the volume presented by Claudiu Ionuț Popîrlan is particularly meritorious, treats a subject of great current and broad interest, the obtained results are mathematically based and experimentally demonstrated, representing the original contribution in developing the proposed multi-agent system and using it in the real world problems.