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EVALUATION OF SMALL SAMPLE ESTIMATORS OF OUTLIERS INFESTED SIMULTANEOUS EQUATION MODEL: A MONTE CARLO APPROACH

Adedayo A. ADEPOJU

Department of Statistics, University of Ibadan, Nigeria

pojunday@yahoo.com

John O. OLAOMI

Department of Statistics, University of South Africa, South Africa

olaomjo@unisa.ac.za

Abstract:

In practice, data collected in a broad range of applications frequently contain one or more atypical observations called outlier. A single outlier can have a large distorting influence on a classical statistical method that is optimal under the assumption of normality or linearity. Many estimation procedures proposed by researchers to handle simultaneous equation models are based on the assumptions that give little consideration to atypical data, thus the need to investigate the distorting effects of outliers in simultaneous equations estimation methods.

In this study, we compare the performance of five estimators (OLS, 2SLS, 3SLS, GMM and W2SLS) of simultaneous equations model parameters at small sample sizes (n) 15, 20 and 25; first order autocorrelation levels (ρ) 0.3, 0.6 and 0.9 of the error terms, when the series are perturbed at zero, one and two times. The estimators are adjudged using the minimum criteria of Bias, Variance and RMSE criteria on the 135 scenarios, each replicated 10,000 times.

Identical results were obtained for the 2SLS and W2SLS methods since there are no restrictions on the parameters. The system methods clearly performed better than the single equation counterparts. Generally, the estimates obtained for the just identified equation are better than those of the over identified counterpart. Surprisingly, the ranking of the various techniques on the basis of their small sample properties does not reveal any distinguishable feature according to whether there is outlier(s) in the data or not and at the different level of correlation, but all the estimators behave asymptotically. On the BIAS criterion, the best method is OLS in the just identified equation, followed by 3SLS in most cases especially where the pollution level is zero for all the three autocorrelation levels considered. The GMM and 2WSLS struggled for the third and last positions. However, in the over identified case, 3SLS is leading closely followed by GMM in most cases (when ρ is 0.9 for all sample sizes considered) and OLS in few other cases (especially at $\rho = 0.3$ and 0.6 and for $N = 20$ and 25 with single/double pollution levels), it is expected that we would be able to identify or suggest the best method to use when we have the scenario depicted above.

Keywords: outlier, small sample, simultaneous equations, autoregressive error terms.

JEL Classification: C15, C13

1. Introduction

In practice, data collected in a broad range of applications frequently contain one or more *atypical observations* called *outliers*; that is, observations that are well separated from the majority or “bulk” of the data, or in some way deviate from the general pattern of the data. A single outlier can have a large distorting influence on a classical statistical method that is optimal under the assumption of normality or linearity. The presence of outlier in a data set can lead to inflated error rates and substantial distortions of parameter and statistic estimates when using parametric or nonparametric test (Zimmerman 1998). As a matter of fact, the effects of outliers will pervade through all the equations and the estimated structural parameters in them. These effects are so intricately pervasive that it is very difficult to assess the influence of outliers on the estimated structural parameters (Mishra 2008). Osborne *et al.* (2001) confirmed empirically that researchers rarely report checking for outliers of any sort, by reporting that authors reported testing assumptions of the statistical procedure(s) used in their studies, including checking for the presence of outliers, only 8% of the time.

Many estimation procedures have been proposed by researchers to handle simultaneous equation models. These procedures are based on the assumptions that stochastic terms be normally distributed and existence of zero correlation between pairs of random deviates. These assumptions give little consideration to atypical data, thus there is the need to investigate the distorting effects of

outliers on each of the methods and determine the best estimation procedure under the influence of outliers and when the errors are not well behaved. Any relationship of econometric theory will almost certainly belong to a system of simultaneous equations whose parameters may be estimated by various simultaneous equation estimation techniques. The problem frequently faced is the choice of the best estimation technique.

To assess the quality and appropriateness of estimators, we are always interested in their statistical properties. For most estimators, these can only be derived in a "large sample" context, (*asymptotic properties*). One estimation procedure may, for example, be selected over another because it is known to provide consistent and asymptotically efficient parameter estimates under certain stochastic environments. Such a heavy reliance on asymptotic theory can and does lead to serious problems of bias (in estimation) and low levels of inferential accuracy when sample sizes are small and asymptotic formulae poorly represent sampling behaviour. This has been acknowledged in mathematical statistics since the seminar work of R.A. Fisher (1925), who recognised very early the limitations of asymptotic machinery, when he wrote; "*Little experience is sufficient to show that the traditional machinery of statistical processes is wholly unsuited to the needs of practical research. Not only does it take cannon to shoot a sparrow, but it misses the sparrow! The elaborate mechanism built on the theory of infinitely large samples is not accurate enough for simple laboratory data. Only by systematically tackling small sample problems on their merits does it seem possible to apply accurate tests to practical data*" (Olaomi, and Shangodoyin 2010).

Conclusion

We have investigated the effects of outliers on a two-equation simultaneous model, where one equation is just identified and the other is over identified. Surprisingly, the ranking of the various techniques on the basis of their small sample properties does not reveal any distinguishable feature according to whether there is outlier(s) in the data or not and at the different level of correlation. This corroborates (Mishra 2008) that these effects are so intricately pervasive that it is very difficult to assess the influence of outliers on the estimated structural parameters. It is expected that we would be able to identify or suggest the best method to use when we have the scenario depicted above. From the experiment, we recommend system equation method for estimation and if possible, models should be made to be just identified.

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COMPUTATIONAL MODELLING OF THE PARALLEL LOGISTIC SYSTEM

Robert BUCKI

The College of Informatics and Management in Bielsko-Biała, Poland

rbucki@wsi.edu.pl

Petr SUCHÁNEK

School of Business Administration in Karvina, Department of Informatics

Silesian University in Opava, Czech Republic

suchanek@opf.slu.cz

Abstract

The paper highlights the problem of mathematical modelling of the highly complex logistic system consisting of parallel production lines. Each production route is arranged in a series of stands equipped with manufacturing machines. It is assumed that all production lines are identical. Each production stand performs a manufacturing operation with the use of the specified tool. Tools get worn out and require either regeneration or immediate replacement. The tool subjected to regeneration can be regenerated a certain number of times only. When this number is reached, the tool must be replaced with a new one. The logistic system is controlled by a determined heuristic algorithm. The production process is optimized by means of the stated criterion respecting defined bounds. Adequate equations of state illustrate the flow of charge material. The time scaling method in order to search for the satisfactory solution with the use of the simulation method is proposed.

Key words: modelling, parallel logistic system, simulation, heuristic algorithms, time-scaling.

JEL Classification: C02, C51, C61, C69, M29.

1. Introduction

Processes in logistic systems are planned and controlled operatively. The flow of charge material is tunnelled precisely so that the production output is maximal within the minimal possible time at the lowest allowable costs where the main goals remain realizing the customers' orders by the assumed time as well as meeting their quality needs. Complex data analysis may result in finding proper solution to the cost cutting issue. Deterministic systems used for these purposes do not involve any randomness in the development of subsequent states of the logistic system (Bucki, Chramcov 2011). Therefore, such a model will always produce the same output from a given initial state. Stochastic ordering is a fundamental guide for decision making under uncertainty. It is also an essential tool in the study of structural properties of complex stochastic systems (Sobotka 2010). Systems of linear discrete equations require determining corresponding initial data which generate bounded solutions (Bastinec, Diblik 2008). Case studies prove that production can be optimized by means of transformation production procedures. In multi stage job problems, simple priority dispatching rules such as shortest processing time and earliest due date can be used to obtain solutions of minimum total processing time, but may not sometimes give sequences as expected that are close to optimal (Shaked, Shanthikumar 2007).

Conclusions

The need for carrying out a computer simulation must be met in order to project the logistic production system which will be able to realize the order in the shortest possible time at the lowest possible costs. To achieve this, more criteria ought to be implemented i.e. the production maximization criterion as well as the minimal tool replacement criterion. To verify the correctness of this kind of modelling, there must also be a multi-criterion model with adequate bounds created. Another idea accelerating the order realization process consists in beginning realization of the next

element of the order vector without having to wait for completing manufacturing the remaining units of the n -th element which means an immediate employing the stand with no current manufacturing duty. However, it requires implementing sub-control for each i -th production line. Moreover, regeneration procedures ought to be introduced and discussed in detail in further works. In order to control the choice of the line we need to implement heuristics which determine the subsystem for producing the order on the basis of the flow capacity of the routes.

Acknowledgements

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ASPECTS OF THE ECONOMIC DEVELOPMENT IN RURAL AREAS OF ALBANIA. CASE STUDY KORCA REGION

Eva DHIMITRI
evadhimitri@yahoo.co.uk

Ledina ALIOLLI
ledi75alolli@yahoo.com

Frederik CUCLLARI
fcucllari@ymail.com

Mirela CINI
mirelacini@yahoo.com

Faculty of Economics, Fan S. Noli University, Korce, Albania

Abstract:

Rural development is a European concern. The rural areas have great potential to create productive jobs and wealth. In Albania more than half of the population lives in rural areas and agriculture is the main source of income and employment. This paper focuses primarily in general situation of rural areas in Albania, in analyse the present situation, problems and difficulties. The problems of rural development are focused in: the concentration and allocation of the population, the diseconomies of the distance, equal accesses in the public services, the secure network for people and the physic infrastructure toward the social one. Region of Korca in Albania is chosen as a case study area to provide a detailed analysis of education system and health care services in mountainous areas of Region. The paper finally concludes with suggestions for rural policies.

Keywords: rural development, mountainous areas, Albania.

JEL Classification: R11; R58

1. Introduction

Albania is mostly a mountainous country and more than half the population lives in rural areas. The economy of rural Albania is greatly based on the agricultural sector. The potential of rural areas to drive the economy, create productive jobs, improve food security, address environmental and climate change concerns, act as a buffer during crises and generally to promote sustainable and balanced growth, is now widely recognized (ILO 2011). Mountainous areas in Albania have great development potentials. These potentials are underdeveloped and life conditions in these areas are inferior to those of other regions of Albania. This is because the sensitivity of government, parliament, civil society, etc. towards mountains is limited. Rural people and excluded groups have low possibilities to enter the labour market or income generating activities. The paper gives an overall picture of the situation of rural areas in Albania, making use of statistical data and exploring case study based evidence.

Conclusions and recommendations

1. Mountainous areas in Albania have great development potentials but the sensitivity of society towards mountains is limited. Mountainous areas are rich in natural resources. These areas have great potentials for the development of agriculture in general and horticulture and small livestock in particular, as well as for the development of tourism and handicrafts. These potentials, however, are underdeveloped and therefore life conditions in these areas are inferior to those of other regions of Albania. This is because the sensitivity of government, parliament, civil society, etc. towards mountains is limited.

2. The impact of policies depend heavily on policy ownership and pressure of interests groups. The mediocre impact of policies on mountain area development and mountainous areas people's lives is due to insufficient policy ownership and lack of pressure from organized advocacy groups.

3. Every strategic framework should be part of a politically recognized integrated planning system in order for it to be sustained. Experience in Albania shows that initiative has not been part of a politically recognised system. Therefore, for a strategic framework to be sustained, it should be part of the politically recognized planning system.

4. Consolidate SARD - (M) (Sustainable Agriculture and Rural Development in Mountainous Areas) policies into a unique document and assign responsibility to Rural Development Strategy

structure as a policy body and to MADA (Mountain Area Development Agency) as an operational agency. That having said, numerous aspects of sustainable agriculture and rural development in mountainous areas are being addressed in several strategic framework. Consolidation of different aspects of SARD-M policies in a unique document may prove to be beneficial. The consolidated document should be accompanied by an action plan based on measures already contained in already existing strategic framework.

5. Improve access and ownership security to land resources. Transfer of rights to forest and pastures is a major factor contributing to improved economic, social and environment situation of mountainous areas. Proceeding fast with the reform of transferring usufruct and ownership rights on forest and pastures to communities – foreseen in both the Environment Strategy and Forest and Pasture Strategy - is obviously of paramount importance. This is equally important everywhere in mountainous areas but it is more pressing in most remote areas where arable land is critically limited and where pressure is exercised on forest and pastures is too high. Preparing and implementing policies intended to promote the land market is an economically, socially and environmentally beneficial policy, given the depopulation of rural areas, especially mountainous remote areas. With the complexity of land markets, a policy that will motivate land rent may prove beneficial in bringing existing idle land into economic use.

6. Support pilot value chain projects to set examples for mountain area development Interventions in mountainous areas should embrace complete value chains (inputs, farming, processing, transport and marketing) rather than parts of the chains. Support to pilot value chains development projects for limited sectors with comparative advantages can set examples which may prove to have a beneficial multiplying effect. MADA may play a coordinating and broker role among different stakeholders and agencies. Based on value chain studies, government may develop value chain policies for fruit and small livestock sectors, for instance, to address the most important value chain bottlenecks carefully choosing working policy options. The processing level should have a special focus. This is in line with broader Government Albania policy: the Government Programme considers a shift from subsistence to market-oriented agriculture underpinned by the development of agro-industry as a key aim (Government of Albania 2007).

Potentials of mountainous areas are continuous; so are the constraints and diversities. Therefore, sometimes it is rather inappropriate to mechanically develop projects and programmes that respect administrative or even political (between countries) borders. Therefore, sometimes projects and programmes will have to involve several administrative or local government units within each country or even several countries when it comes joint country projects. Such an approach may prove helpful even in terms of qualifying for EU structural funds. Such logic is also valid in terms of cross-border projects regarding natural resources protection and development, cross-border trade, transport and tourism, etc.

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OFFSHORING AND EMPLOYMENT STRUCTURE: EVIDENCE FROM CHINA

Hongbo CAI

School of Economics and Business Administration,
Beijing Normal University, **China**
hongbocai@bnu.edu.cn

Hao CHEN

School of Economics and Business Administration,
Beijing Normal University, **China**
hchen1987@163.com

Xinhe LIU

School of Economics and Business Administration,
Beijing Normal University, **China**
zlelxh.student@sina.com

Abstract:

This paper analyses the change (1995-2009) and its reasons (Berman Decomposition 1993) of employment structure in China's industrial sectors. Then we test the impact of offshoring on the employment structure based on China's panel data as a whole and by sector. The conclusion shows that China's overall employment structure in industrial sectors has been improving. The increase of skilled labour in the technology-intensive sectors obviously optimizes overall employment structure, while labour/resource-intensive and primary production sectors are both lag behind. Comparing with inter-industry change, labour-saving technology progress or rise in intra-industry productivity should be the main drivers of employment structure optimization. Significant sector differences in the impact of material offshoring and narrow material offshoring on employment structure exist, and service offshoring appears to promote employment structure overall. Accordingly, we propose policy suggestions about the development of China's employment market in response to the new international division of labour.

Keywords: offshoring, China, industrial sector, employment structure.

JEL Classification: F02, F16

1. Introduction

If enterprises transfer their relatively low efficiency production abroad, they can focus more on comparatively superior activities, thus cutting costs and promoting overall productivity. These enterprises organize production and participate in international division of labour in the form of offshoring. Since the 1980s, as economic globalization has increased, more and more enterprises have embraced offshoring. According to Feenstra, and Hanson (1996), the proportion of the US intermediate imports increased from 5.3% (1972) to 11.6% (1990). Of all the OECD exports of manufactured goods in 1990, the intermediate imports accounted for 21% of total trade value. This figure has grown by 30% from 1970 to 1990 (Hummels *et al.* 2001).

However, it is a concern that if the production activities are transferred abroad, the corresponding domestic employment will decrease. Developed countries worry that large increases in offshoring penalize domestic unskilled labour. The World Bank estimates that 1%-5% of employment in the western Group of Seven is being transferred to those developing countries providing services offshore. Moreover, according to Forrester (2010), there will be 3.3 million jobs and USD136 billion wages moving abroad in 2015 from the US (McCarthy 2011) In fact, the crash of the labour market led by offshoring is greater than that suggests. Taking into account the income differentia and labour demand elasticity, manufacturing workers in developed countries become cleaners, telecom salespersons and truckers. Offshoring can change the labour demand structure, making different types of labour move between occupations (Falk, and Koebel 2002).

In the last decade, China has undertaken substantial offshoring from developed countries, while also importing the intermediate inputs largely from developed countries (Zhibiao Liu, and Fuxiang Wu 2006; Xinqiao Ping 2005). Nowadays offshoring has become an intermediary by which China accelerates its integration into the global division of labour. However, compared with developed

countries, China still has an imprecise understanding of how offshoring affects the domestic labour market. Since China has an abundance of labour, it is unclear whether the development of offshoring will result in similar adjustments to the employment structure. This paper reports empirical research on the effect of offshoring on the employment structures in China's industrial sectors. It extends or corrects previous country-tests aimed at the US and other western countries while providing a policy basis on which to optimize the employment structure guide the labour flows and implement the employment strategy.

Conclusions

Compared with other research, the regression results showing that offshoring contributes to the transfer from unskilled labour to skilled labour are very close to the conclusions drawn by Feenstra, and Hanson (1995, 1996), and Egger, and Egger (2005). Also, the impact of various types of offshoring on employment structure has significant differences by sector (Falzoni, and Tajoli 2009).

With the new international division of labour, a wave of offshoring has been sweeping all around the world. It not only becomes an important way to blend into the global division of labour and participate in global competition, but also increasingly links to the technology process, productivity promotion as well as the income gap within one country. China, as a big developing country, has undertaken a large quantity of offshoring from developed countries over a long period. Over the past decade the materials and services have been regarded as intermediate inputs, which play a role in the process of national economic development by specialization and factor substitution. This period is the key to the changes in the domestic labour market. In this structural revolution, it is production internationalization in which the offshoring plays an important role. We found that the employment structure of China's industrial sectors is continuing to optimize. Intra-industry labour-saving technological progress or productivity promotion is the driving force for China's employment structure optimization. Among all the factors, service offshoring promotes overall employment structure optimization to the maximum extent, and the impact of material offshoring and narrow material offshoring show significant sector differences. Therefore, we can further clarify the relationship between the international division of labour and the domestic labour market, which shows China integrating into and leading globalization and pushing forward the development of China's labour market.

Promote sector productivity and technology intensity; speed up the transformation of the labour market. After 2005, China passed Lewis' first turning point and entered a period of limited labour supply. To respond to this significant change and seize the favourable opportunity, China should accelerate restructuring of the employment structure by promoting productivity and technology intensity in all sectors.

Advance service import; use the effect of offshoring on specialization, spillover and learning. Compared with material offshoring and material inputs from the sector itself, the increase of intermediate service inputs can promote more demand for unproductive labour and with import spillover and learning, it could lead to the transfer from unskilled labour to skilled labour. Together with the enhancement of individual employability, the whole competitiveness of the labour market is promoted.

Attach importance to the effect of non-physical capital in the labour market. The effect of increasing R&D inputs and material capital on sector structure adjustment enhances the flow and relocation of the labour factor. But there is a more or less negative effect of the material on structure optimization. Thus, the optimization and restructuring of labour depend to a certain extent on the accumulation of non-physical capital.

Carry on differentiated development strategies for offshoring according to sector characteristics. The positive impact of offshoring on the employment structure is very significant. However, it should be highlighted that different types of offshoring affect the employment structure in primary, labour and resource intensive, and technology-intensive production sectors in different ways. The inter-industry/inter-sector labour flow ought to be coordinated to realize the dual goals of promoting increases in, and quality of, employment.

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MODELLING OF THE INTERREGIONAL MIGRATION IN SLOVAKIA

Martin JANOTKA

University of Economics

Faculty of Business Economy in Košice, **Slovakia**

matojano@gmail.com

Vladimir GAZDA

Technical University of Košice

Faculty of Economics, **Slovakia**

vladimir.gazda@tuke.sk

Abstract:

In the paper, panel data model of the interregional migration among 79 districts in Slovakia within 2005-2010 periods was estimated. Explanatory factors of unemployment, real wages and density of population were considered threefold: in the district inflow, outflow and net inflow models. In most cases, the factors were proved to be statistically significant. Besides, the fact that most developed regions were characterised by relatively high level of migration activities if compared to the underdeveloped regions, was also observed.

Keywords: migration, districts, panel data, Slovakia, spatial analysis.

JEL Classification: J61, J62, P25, R10, R23

1. Introduction

Economic growth as a main predisposition for economic well-being is often considered in his aggregate form neglecting the regional specifics. However, following exclusively the global economic indicators (like GDP growth, inflation, unemployment) in economic policy implies usually regional disparities and lagging of underdeveloped regions. Public spending paid to remove the regional imbalances can be inefficient as described by Daniele (2009). On the other hand, it seems that flexible character of the labour market enabling moving among regions inside the domestic economy deepens the regional disparities, but contributes to the economic growth in general. That is a reason for study the migration not just as a social phenomenon but also as a factor significantly influencing the economic growth, unemployment and also the regional disparities. The aim of our paper is to provide a research of the interregional migration at the level of LAU1- 79 districts of Slovakia. We tried to prove that the factors of unemployment, real wages and population density play significant role for both the interregional inflows and outflows. However, outer migration (migration from/to Slovakia) is out of scope of this paper.

There are few reasons for that. Firstly, there exist barriers, such as language, cultural barriers or social linkages, for many migrants, which motivate them to stay or move within Slovakia. According to empirical study (Bahna 2008), 40.7% of people participating in research would never move to another country. Another 24.7% prefer to work abroad but live in Slovakia. Preferences in working and living abroad were accepted mainly by younger people and people from towns. Another disadvantage of foreign migration is that there is a preferable variable, which has the main significance to moving – wage level. As the Bahna's study says, migrants moving abroad are often working on low-qualifications job. From that point of view, the internal migration seems to be more stable and consistent regarding to its structure. Secondly, we would like to investigate migration in the light of regional disparities, that means, see the more and less developed regions in Slovakia, its migration activity and urbanization and suburbanization processes.

The structure of paper is following. In the next section, we briefly review some of the similar studies in transitive and developed European countries. Section 3 describes the interregional migration situation in Slovakia in general. Section 4 introduces the database and the panel data analysis with results interpretation used in the research. Summary of the main research results is previewed in conclusion.

Conclusion and policy implications

In this paper, we discussed the interregional migration in the light of impact of the unemployment rate, real wages and density. Two migration trends were observed in Slovakia, the first one indicating immigration to the most economic developed centres (Bratislava, and Košice) and the

second one as a result of suburbanization processes, i.e. emigration from these centres to the suburban areas, mostly rural districts surrounding Bratislava, and Košice.

To summarize implications of our research, a panel data analysis demonstrated three intuitive facts. First, the inflows were remarkably influenced by all of the considered factors so that high real wages motivate migrants to move, high unemployment rate dissuades from immigration and the districts with high density are usually the most active ones, where people migrate to or from. This was an expected result and it explained strong economic-orientated motivation of people to move.

Secondly, both the between and the fixed effects models considered the influence of real wages on outflow rates as statistically significant with regression coefficient having the positive sign, which we explained basically as a problem of low income level people, who are not capable of migration due to the cost of moving, because regions with higher income level have also higher rents or price level of properties. Furthermore, the case of increasing income level, which caused an increase in outflow rate, could confirm suburbanisation processes. With the higher income, migrants invest their money to build or buy houses on periphery with consecutive moving. On the other side, unemployment, according to the results of estimations, does not support emigration, although we expected that increase in unemployment would rise in migration outflows. This can be partly explained with commuting to the work to the nearest developed region. Commuters usually do not change place of living (stay to live in an original region) and start to work in a neighbourhood region. The southern part of Slovakia is a typical example, where people have a possibility to work in Hungary or Austria. Besides that, it should be pointed out that outflows are more than inflows connected to the international migration and the results could be significant if considering international migration.

Finally, concerning net inflow models, all coefficients for explanatory variables were statistically significant.

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THE EFFECT OF FINANCIAL RATIOS ON THE FIRM VALUE: EVIDENCE FROM TURKEY¹

Süleyman Serdar KARACA

Gaziosmanpasa University, Tokat, Turkey
suleymanserdar.karaca@gop.edu.tr

Arif SAVSAR

Gaziosmanpasa University, Tokat, Turkey
arifbjk@hotmail.com

Abstract:

This study examines the effect of financial ratios on firm value. For this purpose, the firms in the sectors of Food-Drink-Tobacco and Basic Metal Industry involved in ISE 100 index are examined. In the study, the relation between firm value and financial ratios are analyzed by panel data analysis. In the analysis 36 firms operating in these sectors between 2002 and 2009 have been analyzed. The dependent variable of the study is firm value; the independent variables are financial ratios. As a result, it has been found out by panel data analysis that financial ratios influence the firm value. There is a significant and positive relation between receivables turnover and firm value; there is a significant and negative relation between inventory turnover and return on equity. No significant relation has been detected between the other ratios.

Key words: firm value, financial ratios, panel data analysis.

JEL Classification: G17, G32, H32.

1. Introduction

The relation between firm value and financial ratios has been paid great attention in financial areas in recent years and various academic studies have been done about this issue. While investors invest on the firms, by the help of stocks, they are to measure the risk level of the firms. Hence, as investors invest on the stocks of the firms, they will have to analyze factors that are special for these firms and influencing the income they are going to provide in an accurate and meaningful way. As they are special for the firms, financial ratios are able to provide the investors with the information of the real value of the firms. Return on stocks may be influenced by the speculative actions of variable markets whose return on stocks is low and especially whose market depths are not much.

Firm value is attained from the results of analysis of cash flow expected to be created and firm's assets, organizational structure, the technology used and human resources. Not only shareholders but also the creditors providing financial loan to the firms have rights on the assets of the firms. Because, when a firm is dissolution, receivables of the creditors are paid earlier compared to the shareholders' invested capital. Therefore, firm value is equal to total of firm's net financial debt (after liquid assets and stocks are decreased) and values of the share (Chambers 2009, 14).

Firm value is one of the concepts that have been developed for accounting the real value of the firms more realistically considering the concept of market value. Firm value is a concept demonstrating the value of the firm purified from the cash and cash equivalents and financial debts as regards to the concept of market value (Ilgaz 2010, 23). In our study, the concept that we used as firm value can be expressed below:

$$\text{Firm value} = \text{Market value} - \text{Total Financial Debts} - (\text{Liquid assets} + \text{Marketable Securities})$$

Conclusion

In this study, the relation between the financial ratios and firm value is tested by means of panel data analysis. In the analysis, dependent variable is firm value; independent variable is financial ratios. When analyzed in general, as the result of panel data analysis, the hypothesis of the study "H₁: Financial ratios have an effect on the firm value." is seen to be accepted.

¹ This study was summarized and corrected from the Thesis that was prepared by Arif SAVSAR in consultation with Assistant Prof. Süleyman Serdar Karaca.

When the results of panel data analysis are regarded, the hypothesis “Financial ratios have an effect on firm value” is supported at the rate of 20%. That is, financial ratios explain and influence the firm value at the rate of 20%.

When the ratios related to firm value, it has been defined that Accounts Receivable turnover is meaningful and positive; Stock turnover is meaningful and negative; Equity Capital productivity is meaningful and negative. There is no relation between other financial ratios used in the analysis and firm value.

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EXPLORING THE EFFECT OF TRADE BALANCE AND INDUSTRIAL PRODUCTIONS ON NATIONAL DEBT

Panagiotis KOTSIOS

Technological Educational Institute of Larissa, Greece

panayotiskotsios@gmail.com

Abstract:

The goal of the current research is to examine structural determinants of national debt levels. Mainstream economic theory holds government revenues and expenditures as the major causes of budget deficits and the accumulation of national debt. This paper adopts a somehow different approach, considering industrial production and trade balance as major causes of a country's debt. In order to test the validity of this hypothesis, it examines the relationship between national debt, government revenues and expenditures, industrial production and trade balance in an econometric model. The data used come from Eurostat and they concern 26 European economies.

Keywords: national debt, trade balance, industrial production, panel data analysis.

JEL Classification: E23, H62, H63

1. Introduction

The goal of the current research is to examine structural determinants of national debt levels. Mainstream economic theory holds public spending as the major cause of budget deficits and the accumulation of national debt. This paper adopts a somehow different approach, considering industrial production and trade balance as major causes of a country's debt. In order to test the validity of this hypothesis, it examines the relationship between national debt, industrial production, trade balance and government revenues and expenditures in an econometric model using data from 26 European economies.

Conclusions

The goal of the current study was to test the effect of trade balance, industrial production and government expenditures on public debt levels. The conclusions of the study can be drawn from the regressions' results. Industrial production was found to have a negative effect on public debt, meaning that an increase in industrial production value can lower public debt levels. Government revenues were found to have a negative effect on public debt levels, meaning that an increase in government revenues can also decrease public debt. Government expenditures were found to have a positive effect on public debt levels, meaning that an increase in government expenditures can increase public debt. Trade balance was expected to have a negative effect on public debt, however this hypothesis cannot be verified from the regression results. The validity of the test's results can be verified in a future research, by expanding the sample and by using data from non-European countries as well.

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EVALUATION OF DEPENDENCE OF OCCURRENCE OF RISK EVENTS IN LOGISTICS ON RISK FACTORS BY MEANS OF SOMERS' D COEFFICIENT

Alena MINÁROVÁ

Faculty of Economics, Technical University of Ostrava, Czech Republic

alena.minarova@gmail.com

Abstract:

The objective of this article is an empirical measurement of the dependencies of selected ordinal variables in order to obtain incentives for risk management in logistics. The article is aimed at assessing an asymmetric dependency of two variables, namely the dependence of occurrence of risk events in logistics on risk factors. Somers' d coefficient was used to measure the dependence, as it is the only one allowing unilateral dependence measurement. The article provides detailed explanation of the procedure used to calculate the Somers' d coefficient (calculated using partial calculations of the number of concordant and discordant pairs etc.) and its subsequent evaluation in terms of reliability (using significance level 1%, 5% and 10%). The resulting values are presented in several tables, depending on the used evaluation criteria - risk factors in logistics with the greatest dependence with the significance level of 1%, the most important groups of risk factors and risk factors with repetition for at least four risk events. The testing was performed using data collected through the medium of a questionnaire survey conducted in 2010 within the scope of SGS in the Czech Republic and Slovakia.

Keywords: asymmetric dependence, Somers' D, risk in logistics.

JEL Classification: C19, M11, M19

1. Introduction

The issue of risk management keeps its permanent position in company management. Its necessity is particularly urgent in the time of overcoming the current economic crisis. The research carried out by SGS (Student Grant Competition), dealing with supply chains with emphasis on the risks and costs and the possibility of using simulation techniques, was based on a questionnaire survey in companies. We have used the questionnaire survey in order to find out what logistic risks the companies are exposed to in terms of their occurrence and impact, which risk factors are seen as the most important, what trends in the occurrence of risk factors they expect in the next three years and what the situation is in risk management when the primary use of prevention tools and cooperation within the supply chain are considered.

The questionnaire survey, in addition to other analyzes (analysis of frequency, variability in response etc.), has shown the need to analyze the dependence of the respondents' answers, particularly asymmetric (unilateral) dependence of risk events on the risk factors, in order to identify the risk factors that are most commonly involved in the formation of specific risk events.

Conclusion

The article is focused on testing the dependency of two variables, namely the dependence of the occurrence of risk events on a risk factor. We have used the Somers' d testing statistic which allows monitoring of unilateral (asymmetric) dependence of data having the character of ordinal variables, which had been obtained by a questionnaire survey.

A mathematical model has been formulated as a hypothesis of the dependence, respectively independence of two variables (risk factor, marked X - independent variable, risk event, marked Y - dependent variable). The relationship between two variables was initially calculated manually to provide a clear illustration, but because of time-consuming nature of the calculations, the remaining ones were performed using SPSS software. The output of the software was represented by a table showing the strength of relationship between the variables and also the p-value used for assessing the significance of the relationship strength (i.e. the significance level at which the given hypothesis α is valid). The data from the individual tables have been grouped into more complex tables for their better explanatory ability.

The analysis of dependencies has set apart the relatively strong factors such as internal processes and management factors. This has been confirmed by Table 13 of the Frequency of occurrence of the most important risk factor (with ***) for selected risk events as well as by Table 14 Risk factors with ***, which were repeated at least during four selected risk events. The types of risk factors described above have prevailed in both types of tables. In terms of repetition, the leading risk factors were B3.4 - error rate of employees in the manufacture, warehouses, and by maintenance and B3.5 - dependency of processes on the know-how of several key employees - appearing in more than four risk events. Based on these results, it is necessary to raise attention in human resources area as well (e.g. by selecting competent and skilled workers, or through contractual treatment of the labour relations in terms of retaining the know-how in the factory).

The outcomes of this analysis, however, should be combined with other analyses – they deepen and complement the outcomes of B area analysis - risk factors, where the presence of risk factors have been researched, but without relation to adverse events.

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CORPORATE GOVERNANCE IN INDIA: STUDY OF THE TOP 100 FIRMS

Rajesh K PILLANIA

Management Development Institute, Gurgaon, India

rajesh@pillania.org

Abstract:

The concept of corporate governance is centuries old but it has gained a lot of momentum in last two decades in India. This paper studies the corporate governance practices in the top 100 companies in India. We find that in all industries irrespective of sector all companies practice some sort of corporate governance at least as said in their annual reports due to mandatory requirements. The primary driver mentioned behind the corporate governance practices is the interest of the stakeholders. The chemical/ fertilizer/ some manufacturing industries have certain incentives to follow the corporate governance practices in the form of carbon credits. We find that the corporate governance practices have a major impact on the performance of the companies. We see that the companies have no major plans to change their corporate governance practices in near future.

Key words: corporate governance, strategy, India, top companies.

JEL Classification: L1

1. Introduction

The concept of corporate governance is centuries old but it gain prominence globally after a string of high profile corporate scandals. In India also the concept has gained a lot of momentum in last two decades. Exposed malpractices in 2008 at Satyam Computer Services Limited (SCL), the fourth largest software company from India, again brought the spotlight on corporate governance.

The Confederation of Indian Industry (CII) was the first one to come up with the Code of Desirable Corporate Governance in 1998. The Ramakrishna Commission on Public Sector Undertakings (PSU's) corporate governance emphasized autonomy in professionalizing the board, providing incentives for the top management, accountability, autonomy in price fixation, strengthening investors interface, power to dispose of assets, providing for elected directors, setting up a pre-investigation board, freedom in investing within certain limits, and power to enter a joint venture (Ramakrishna Commission Report, 1999). Securities Exchange Commission of India (SEBI), appointed K. Birla Corporate Governance Committee report was accepted in 2000 and it became clause 49 of the listing agreement of every Indian stock exchange. The latest effort in this direction is the Companies Bill 2011 from Ministry of Corporate Affairs, Government of India.

In India, companies with good corporate governance measures are easily able to borrow money from financial institutions as compared to companies with poor corporate governance measures. Moreover, there is evidence that mutual funds have invested money in companies with a good corporate governance track record as compared to companies with a poor CG track record (Mohanty 2003). Good corporate governance helps an organization achieve several objectives and some of the more important ones include: Developing appropriate strategies that result in the achievement of stakeholder objectives; Attracting, motivating and retaining talent; creating a secure and prosperous operating environment and improving operational performance; and, Managing and mitigating risk and protecting and enhancing the company's reputation (KPMG 2009).

The problem of corporate in India is different from that of the Anglo-Saxon environment because the exploitation of minority shareholders by the dominant shareholders is the problem in India whereas exploitation of shareholders by the managers is the problem in the Anglo-Saxon environment. Further in the Indian context, the capital market is more capable of disciplining the majority shareholders than the regulators (Chakrabarti 2005). Majority of the respondents believe that while corporate governance should be practiced through principle-based standards and moderate regulations, there is a need for stronger regulatory review and exemplary enforcement (KPMG 2009). While India has undertaken numerous reforms in corporate governance over the past decade, especially in the area of company boards, independent directors and disclosure and accounting standards, certain critical areas remain to be addressed—particularly relating to the accountability of promoters (controlling

shareholders), the regulation of related party transactions, and the governance of the audit profession (ACGA 2010).

This paper studies the corporate governance practices in top 100 firms in India. This paper consists of four parts including the introductory part. The next part elaborates the research methodology. The third part presents the findings and discussions on the practice of strategy in Indian context. The last part is conclusion of the chapter.

Conclusion & directions for future research

We find that in all industries irrespective of sector all companies practice some sort of corporate governance at least as said in their annual reports due to mandatory requirements. The primary driver mentioned behind the corporate governance practices is the interest of the stakeholders. Based on our study of the annual reports we find that companies like Punj Lloyd or Crompton Greaves follow the rules of corporate governance and implements it stringently.

The chemical/ fertilizer/ some manufacturing industries have certain incentives to follow the corporate governance practices in the form of carbon credits. We find that the corporate governance practices have a major impact on the performance of the companies. We see that the companies have no major plans to change their corporate governance practices in near future.

This study tried to answer five key questions related to corporate governance in Top 100 companies from India. Future studies can undertake more in-depth analysis of each question raised here.

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DETECTION OF NONLINEAR EVENTS IN TURKISH STOCK MARKET

Veli YILANCI

Istanbul University, Department of Econometrics, Turkey
yilanci@istanbul.edu.tr

Abstract:

In this study, we test the nonlinear dependence in the Turkish stock market namely, Istanbul stock exchange-100 over the period 2 January 1988 - 31 December 2010 by employing Hinich (1996) portmanteau test statistic jointly with Hinich, and Patterson (2005) non-overlapped windowed testing procedure. Finding nonlinear episodes in the stock returns, we identify which economic and political events trigger the nonlinearity. The results show not only national but also international economic and politic events cause the episodic nonlinearity in the returns.

Keywords: Event detection, nonlinearity, stock market, Turkey.

JEL Classification: C12.

1. Introduction

Over the last thirty years, exploring nonlinear behaviour of financial and economic time series has received great attention as statistical and econometrics methodologies have been developed, and computers have become more efficient (see Brooks *et al.* 1999; Swanson, and Franses 1999, among others). Especially since the study of Hinich, and Patterson (1985) in which they studied nonlinearities of the New York stock exchange, there have been a lot of studies in the literature to uncover the nonlinear characteristics of both developed and developing markets.

The sources of nonlinearity in stock markets can be explained in several ways; the timings of reactions of market participants against to the new information incorporated into the stock prices can be different from each other, furthermore, attitudes of investors towards risk and expected returns (Campbell *et al.* 1996), presence of market frictions and transaction costs (McMillan 2003), diversity in agents' beliefs (Brock, and LeBaron 1996; Brock, and Hommes 1998), nonlinear feedback mechanisms in price movements (Antoniou *et al.* 1997), and market imperfections (Lim, and Hinich 2005) can be other explanations for the nonlinearity.

This study tests the nonlinear dependence in Turkish stock market namely Istanbul stock exchange-100 (ISE) by employing Hinich (1996) bicornelation test statistics jointly with Hinich, and Patterson (2005) non-overlapped windowed approach. Thus we can test the nonlinear dependence and uncover which events cause this nonlinearity. An important point to focus on is that the results of this methodology show not only national but also international events can have effect on nonlinear dependency. For example, Romero-Meza *et al.* (2007) find that the attack of Iraq to Kuwait, and as a result the increase in the price of oil is one of the reasons of nonlinearity in the Chilean stock market. This paper proceeds as follows. The next section outlines the econometric methodology. Section 3 describes the data and presents empirical results. The final section concludes the paper.

Conclusion

This study investigates episodic nonlinearity in Turkish Stock Market namely Istanbul stock exchange-100 (ISE) using the Hinich portmanteau test jointly with Hinich-Patterson non-overlapped window procedure over the period 2 January 1988 - 31 December 2010. The results show nonlinearity has an episodic characteristic in the ISE, which is one of the reasons for the forecasting models' low performance since the timing of the dependencies is difficult to know. The study also identifies which national and international economic and politic events are the causes of this nonlinearity.

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