MISKOLC UNIVERSITY
FACULTY OF ECONOMICS

GERGELY NAGY

Methodology and IT support of taxation and control of the fiscal payment obligations

PH.D. THESIS

Miskolc, 2010

MISKOLC UNIVERSITY
FACULTY OF ECONOMICS

GERGELY NAGY

Methodology and IT support of taxation and control of the fiscal payment obligations

PH.D. THESIS

NAME OF THE DOCTORIAL SCHOOL:	**BUSINESS THEORY AND EXPERIENTAL DOCTORIAL SCHOOL**
HEAD OF DOCTORIAL SCHOOL:	**DR. ISTVÁN SZINTAY** Professor Candidate in Economics
SENIOR SCIENTIFIC:	**DR. TIBOR PÁL** Associate Professor Candidate in Economics

Miskolc

2010

CONTENTS

1. REASONS FOR CHOOSING THE RESEARCH'S TOPICS

The existence and prevalence of shadow economy, the so-called black economy is part of our everyday life, to which is usually related some kind of tax avoidance', tax savings' intention. However, the fact remains that in Hungary the overall tax burden's level is very high, the range of taxpayers in the population is very narrow, and this may contribute to the development and survival of the shadow economy and tax evasion.

In the frame of my research I wanted to estimate the shadow economy's size relative to the GDP in Hungary and in the European Union.

I would like to give a theoretical answer for the following question: what kind of individual factors influence the person's decision to participate or not in the black economy?

For example, to pay homage to it's total income or to only a part of it, to report it's employees, or, rather employ them illegally, to purchase without a bill or find more legitimate businesses.

Exploration of the factors influencing the behavior of these mechanisms may lead to detect the connection system of the hidden economy.

My research is intrinsically linked to the Hungarian Academy of Sciences' and the Prime Minister's Office's 2007-2008 research on "Participation in the hidden economy and the government's tools to reduce it", to the research at the same time running, carried by the World Bank and the Prime Minister's Office on "Suppression the black and the informal economy in Hungary "as well as to the OTKA research led by Istvan Janos Toth in Institute of Economics of the Hungarian Academy of Sciences, on" Hidden economy and hidden employment ".

In many cases the results of these researches have been incorporated with the appropriate references into my dissertation.

At the same time a relatively small number of researchers deals with this area, despite the fact, that ensuring the tax revenues covering the increasing public goods funds is a growing problem for the states.

The dynamic growth until the end of the 1980s namely provided it's source, then followed by a slowdown in economic growth the increase of tax rates and expansion of the hidden economy and tax hiding were in general perceptible.

Previously unknown forms of tax concealment have appeared, just like claiming the refund of the value added tax (VAT) based on fictitious transactions, systematic reduction of the tax base with not real accounts, increasing proportion of not reporting employees and employing them on minimum wages.

In such an environment the question is often formulated, isn't it the government's failure,that it fails to raise the cover of the costs without tax increases, even if some typical public tasks are privatised and in frame of sector cooperation agreements it passes some of the risks on the private sector. For example: public private partnerships, concessions, etc.

The government's failure may not only appear in the quality or costs of public goods and services, but also in creating the conditions for likely getting caught in case of tax evasion and also in the effectiveness of the applicable penalty rate's deterrent effect in case of getting caught.

In the framework of my research I would like to find the answer, if state tax audit activities the so-called tax administration works properly.

What is the proportion of hidden revenues explored, are the methods and rules appropriate?

According to the theoretical model of deliberate tax avoidance, the most effective way to explore the so-called shadow economy and fight against the so-called tax avoiders is increasing the risk of being caught.

In my thesis I suggest a risk analysis method with an information base, which can be used efficiently for revision of both value-added tax, wealth test, and all other taxes and support, it can also be further developed for corruption cases and unreported employment.

The research's findings related to the hidden economy may contribute to the reduction of tax evasion, from the surplus revenue the public goods can be financed and the tax rate can be reduced to a lower level.

I think, that some isolated measures such as more efficient operation of tax administration itself can not be a substantial breakthrough in combating the shadow economy.

At the same time the factors affecting individual costs and yields of participation in the hidden economy should be managed in a complex system, due to the global financial and economic crisis deteriorating business climate should be offset with paying the additional income for tax deduction.

2. RESEARCH BACKGROUND AND METHODOLGY

During my research I have studied the previous research findings and case studies related to the size and operational characteristics of the shadow economy.

To prove my theses, I have used results of several national surveys and empirical research to estimate the size of the shadow economy and to assess it's social acceptance.
Among others, research results of the Progressive Institute, the Hungarian Academy of Sciences, the Hungarian National Bank, Paul Belyó – a well.known Hungarian expert of this area -, and surveys of E. Schneider, who researches this subject in the German speaking area. As a benchmark, I have adopted calculation and estimation results made in the German speaking area by E. Schneider, known expert of the University of Linz (Austria).

Determining the factors influencing the hidden economy and tax evasion I have taken researches made in this area by Hungarian experts Semjén Andras Szanto Zoltan Toth, I. John Lacko Mary Agnes Czibik - Medgyesi Martin, Flat End and Urban Janisch into consideration, I refer to their results accordingly.

I have tried to prove my hypothesis about assumption of the linear relationship of the per capita GDP and tax burden's level with the size of the hidden economy, with regression calculation method, in relation to the OECD countries.

Researching the context of the tax system and economic policy I have used the acts showing the annual changes of VAT, personal income tax, tax administrative procedure and Accounting Act, fiscal laws justification and from discharge the acts passed by the Parliament, guidelines of the European Union and tax laws of the Member States.
As an international comparison statistical reports provided by the OECD and the Hungarian Central Statistical Office's statistical yearbooks served as a basis.

With the method of the comparative analysis I have looked for the Hungarian specialties in respect of the tax system, which may explain the particularly high level of the shadow economy.
I used as work sources the annual reports of the government on the results of combating the black economy as well as summaries of the activities of the Hungarian Customs and Finance Guard (VPOP) and Tax and Financial Control Administration of Hungary (APEH).

By general theoretical determination of the audit I have reviewed the positions of well-known domestic and foreign experts related to this, as well as the characteristics, the regulatory and decision-making levels of the accounting and the financial accounting , also the relations of the accounting information system, which have been used to prove my theses.

In the framework of risk analysis of the emergence of tax evasion and the so called being caught, I have reviewed the official tax inspection bodies, their powers and control methods. To adjudge the penalty rate system I have summarised the Hungarian legal framework and judicial practices, in addition I have reviewed the practice of German-speaking countries to demonstrate, whether the Hungarian regulatory system is appropriate.

For the data comparison I have used the Hungarian (CC) and the German, Austrian and Swiss Penal Code (StGB). I have assured the foreign court decisions with Internet access of www.justline.de http:// http:// www.justline.at and http:// www.steuern.sg.ch.

To my model for rolling back the hidden economy with risk analysis methods I have used the annual publication of Tax and Financial Control Administration, the so-called Bulettin, from which I have collected datas and with them I have determined the model's environment, the taxpayers and the availability of control human and IT resources.

By determining the model's screening parameters I have utilized the publications of the following professional journals Adóvilág and SZAKma, as well as my former experiences as a tax inspector and my current experiences as a business man.
These considerations are at the same time scalable, they can be changed, they do not affect fundamentally the program's operation.

For testing the model's operation I have made a data collection, it was carried out by using the offered "VAT Fraud" list of Index News Search on the Internet http://google.hu under the entry-word "VAT fraud".
From this compilation, by grouping the information I have created a test database, which covers the real perpetrators of large amount of value added tax evasions and their methods, published in the last two years.

Testing the model demonstrated it's usefulness.
Similar to the VAT tax, giving databases and collate aspects I have pointed out the possibility of the program's use by other control methods and tax investigations.

During my research I have chosen among the research methods tailored to answering the research questions.
Beyond cognition of environmental changes, accounting literature, several disciplines, eg. state theory, tax theory, sociology, law, statistical hypothesis testing became necessary to be reviewed and I try to rely on the results of previous researches made on this subject and to take them into account during my work.

3. PURPOSE AND STRUCTURE OF THE THESIS

My thesis aims to answer the question, whether the taxes covering the traditional functions of government and the production of public goods, would flow into the budget, or a substantial part of it remains hidden in the shadow economy, and also, how this can be more likely to reveal.

I have wanted to determine the social acceptance of the hidden economy and the factors influencing it, in order to develop a methodological proposal, which contributes to an increased revenue collection and exploration of tax evasion without adding significant control costs.

In context of my research I have aimed to identify the typical behavior related to this area, the European comparison of ratio of Hungary's rating as well as determining the factors influencing the deliberate tax avoidance's decision.

In the framework of my thesis I have also looked for the answer, what factors are behind of the tax evasion, the formation and survival of the so-called shadow economy? I have looked for the correlation between income level, the tax burden, cultural traditions and the alternative risk-averse person's character, the probability of tax avoidance coming to the surface, the so-called risk of being caught and the height of penalty rates.

I have tried determining the factors, which influence the tax avoidance's decisions and testing the effects of each factor with practical data.

Part of my research was the relationship of the tax and economic policy, from that point of view, whether it is possible to detect a Hungarian feature, a unique feature, which explains the extremely high level of the shadow economy?

I have made a short outlook on the economic schools' views of the government's role, however I have agreed with the traditional approach, whereby the need for government intervention is usually triggered by some disturbance in the market.
The error of state intervention, the so-called it's failure may significantly contribute the survival of the hidden economy.
The reason for hiding is mostly due to the intention of avoidance under taxes and other regulatory requirements, which is the response of part of economy agents for the various government measures. For example: for increasing taxes, deteriorating the quality of public goods, steps for relaxing the control apparatus.

In my research I have analyzed the recent organizational and jurisdictional changes of the control apparatus, and also, what kind of methodology is used in control practice at present.
I was looking for answering the question, what the financial and tax audit really is?

I have completed the identification of the company's accounting and financial information systems, also the information and decision-making mechanisms.
It was necessary in order to verify my hypothesis related to the financial and fiscal control.

With an overview of the traditional documentary control and computer control methodology I have tried to find the answer, if tax avoidance techniques are detectable without a fundamental change of the methodology and infrastructure of the current control organizations and the applicable accounting standards, criminal and civil penalties are appropriate for reducing the avoidance rate or in need of fundamental changes.

In my research the possible exploration methodology of tax evasion was carried out from the perspective of VAT avoidance.
In this context, I have reviewed the European Union's regulatory and tax practices as the most unified jurisprudence is in this tax.
According to the surveys and estimates, however, tax concealment / evasion is also the most common by this tax.
One way of tax non-payment is partial or complete concealment of the turnover, or unauthorized reclaiming that are not in accordance with the activity, allowing the here generated income to hide.

I have created through the tax research a risk-analysis based audit model with the aim of functioning on the available human and information technology base, being capable of exploring with great efficiency the businesses and individuals engaged in tax evasion, so that a significant segment of the informal economy.

For controlling the operation of the model I have collected cases of VAT avoidances, the so-called frauds that have become known for public in the past 2 years.
By using these test data I was looking for an answer, if using my model the same or similar events can be explored?

At the very end of my dissertation research I was also looking for and finding the answer, if the developed audit methodology with an IT background can be applied to other types of investigations and taxes?

The structure of my thesis meets the objectives of my research, it is divided into three parts.
Part I. contains a summary of my thesis in English and Hungarian, I formulate the research's purpose, scope, methodology, assumptions, and the dissertation's structure.
Part II. is a summary of the research work's results in order to justify my hypotheses.
Part III. contains the conclusions, theses, abbreviations, publications and bibliography as well as the attachments that have been used during the research work.

In conclusion, the aim of my research was to determine the size and the influencing factors of the shadow economy and to prove, that by using the tools of financial accounting, by development of audit methodology, by using the existing IT background the shadow economy, the so-called black economy, including the extent of tax evasion
can be reduced without substantially increasing control costs.

4. NEW AND NOVEL RESEARCH FINDINGS

My dissertation focuses on researching the hidden economy (Schattenwirtschaft). In this context, I have intended to explore this segment's taking into consideration, it's social acceptance, share in GDP, influencing factors, specific manifestations and areas.

As a starting point to my thesis, I have adopted the Eurostat's accounting methodology, namely when talking about hidden economy, it includes the so-called black economic gains, but not the crime, courtesy of power and performance of household chores.

Typical phenomena of tax avoidance among enterprises / entrepreneurs:
• omission of a part of the revenues from the register,
• accounting costs that did not incur related to the production, the so-called fictitious invoices among the expenditures,
• accounting recreation and travel costs of the own household and subsistence among the production's costs,
• employment of undeclared workers and paying some of the wages of the reported employees from pocket,
• deliberately not declaring consumption, excise and other taxes, without title making demands on government subsidies and tax reimbursements, putting into deduction.
• fraudulent bankruptcy and embezzlement, smuggling, other economic crimes.

Addition to this, there is also a significant number of those, who didn't ask for permission to do an activity, are not included in tax records, however, in their professional activities, they still gain income:
• working without account,
• working for other households against financial services, for example: maid, child care, private education,
• leasing properties without being reported,
• taking tips, gratuities, without being declared;
• usurious loans,
• making harm for consumers, faking brands…etc.
• beneficiary of corrupt transactions.

In order to assess the social acceptance of a performance in the hidden economy I have used the Progressive Institute's representative sample survey, conducted by interviewing 2300 people, that was carried out with the title of "Political Map", in the framework of the research at the end of 2008 in Hungary.

The database properly represents the Hungarian adult population, and the interview results can also be used to verify the hypotheses of my thesis, as I have used them legally, with the contribution of the interviewers.

T1: As a result of the historical and social conditions evolved in Hungary, the ration of hidden economy is extremely high, well exceeding all the official estimations made so far and supposedly almost a half of the population constitutes the part of the black economy in some way.

At the same time, the level of being accepted by society is high for simpler cases, while low for intended crimes of economic nature.

The fact of being personally concerned by hidden economy is usually concealed.

The size of the shadow economy by its nature can not be measured directly, but to it's estimation an internationally accepted methodology is available.
According to the studies published on this topic, in Hungary the hidden economy in 1993-1994 was the highest, it reached 35-40% of the GDP , but as a result of the measures taken against the black economy, it's rate has gradually narrowed ever since, currently it is between 20-30%.
However, that level is still nearly double of the developed European countries' similar datas. Considering it's composition, determining are labor abuses (46%), failing to account, accounting fictitious invoices and costs (28%) as well as other forms, e.g. intentional tax evasion, corruption, illegal activities (24%).
I was searching for an answer by correlation analysis of the hidden economy's estimated data, if it is possible to demonstrate a linear relationship between per capita GDP and the ratio of the shadow economy, as well as between the hidden economy and the tax burden.
The calculations resulted in rejecting my preliminary hypotheses.
I have used the theoretical model of Becker related to the delinquent behavior, and also built in findings of other previous researches, then as it's continuation, I have examined, how and based on what factors calculating the taxpayers, what part of their income will be declared, how they will likely respond to the changes of the tax rate, the risk of being caught and the penalty factors, when they make a decision.
By the model I haven't taken into account the individual's risk aversion / risk seeking behavior.
I suppose, that the individual seeks to maximize it's income, namely it will not admit the total earnings until the amount of tax having saved exceeds the potential loss calculated with the risk of being caught, the so-called utility loss.
I suppose basically two possible behaviours of the taxpayer:
- ● confesses his total real income (in this case his income after tax is Y)
- ● or confesses only a part of the actual income, so he saves a part of the tax,
    by this time his income is $Y' = Y + (WX)\theta$.

After choosing tax evasion, there are two possible cases:
- • the tax authority controls and catches him, then he must pay the tax after his full income and also the fine after the concealed income.
    by this time his income: $Y = Y'' - (W, X)\pi$
- • or the tax authority does not control them and they do not fail
    by this time their income: $Y' = Y + (WX)$, benefits of tax evasion $= (WX)\theta$

As mentioned above, the income will be: $Y'' < Y < Y'$
The components taken into account by deciding to maximize the income:

$$f(U) = (1-p)(W-\theta X) + p[W-\theta X-\pi(W-X)]$$
$$A = f(U) - Y$$

where:
   p= probability of the taxpayer will be controlled by tax authorities
   W= the taxpayer's actual income, which tax authorities do not know
   θ= tax rate, which is constant for all income levels
   X= the taxpayer's declared income
   π= penalty rate, which is greater than θ
   U= available income (Y, Y',Y")
   A= available surplus income or loss by tax evasion

The practical calculations carried out with the model proved my hypothesis:

T2: The extent of tax avoidance and the number of tax avoiders depend not only on the height of the tax rate but mainly on the extent of penalty to be laid on in the event of being caught as well as the efficiency of control, that is the probability of being caught.

The level of earning does not influence the utility of the actual tax avoidance.

The most successful way of exploring the hidden economy - that is fighting against tax avoiders - is, in parallel with the reduction of the tax rate, to establish such controlling methods, data bases and information background which will significantly increase the probability of tax avoiders' being caught and raise the rate of penalty in the event of being caught.

In rest of my dissertation I have examined the operation of the Hungarian tax system in regards whether it shows any significant difference in comparison with countries of the European Union.

Using the method of comparative analysis I have classified:

- the total tax burden (θ)
- taxes and contributions burdening the labour incomes
- size of taxes burdening capital
- size of taxes burdening consumption
- the number of taxes and fiscal centralization

In terms of tax burden on labor, only Germany and Belgium has a higher tax burden in the European Union, than in Hungary.

The property tax's ratio to GDP in Hungary is far below of the developed European countries' average.

Following the overview of the VAT in the European Union's members, I have found that the tax treatment is the most unified in the taxpayers, the base, the extent and the accounting. However, the general rate of VAT in Hungary is in fact the second highest after Denmark in the European Union,as in the third one, in Sweden the overall key rate (25%) is similar to the Hungarian, but in contrast to Hungary the fundamental foods and services are taxed with a good or extra positive rate.

Particularly outstanding is the number of VAT rates (in Hungary, 4, elsewhere 2-3) as well as VAT reductions and the extraordinary range of calculation methods.

The taxes' number is also large, in the European Union it is one of the most titles (almost 40) tax deductions to happen, and there is outstanding lots of the so-called small taxes.

In terms of fiscal centralization the Hungarian ratio corresponds to the average of the European Union and except Romania to the proportion of the former socialist countries, so in this area no substantial difference was observed.

T3: In Hungary, the tax burden is extremely high compared to the GDP. Regarding its internal structure, the disproportionately high rate of the burden of living labour as well as the extremely high general rate of value-added tax and in parallel with these the extent of asset-type taxes which is very low even when compared to the international level may all contribute to the hidden economy's being so wide-spread in Hungary.

To prove my hypothesis related to the audit's theoretical methodology I have reviewed the financial and management accounting, as well as the enterprise's accounting information systems and relationships.
I interpret accounting and it's information system, under which the business' activities, assets, liabilities, turnover, effectiveness and other characteristics, after processing the economic events such data, analysis, returns and statements are made, that satisfy both the internal and external information needs.

The two areas form an organic whole, as long as financial accounting is based on external legislation, accounting standards, accomplishment of specified scheduled reporting and tax payment obligation, management accounting is fundamentally based on the company's own information needs, data reporting requirements necessary to make decisions in time.

Financial accounting includes bookkeeping, report preparation, making tax returns and other external data services.
In the framework of information, business assets and it's changes will be presented, to be financed with equity capital and liabilities (balance sheet) the period's income and expenses, gain or loss (income statement), equity changes and statement of the company's financial position (Cash Flow), as well as other reports, for example: environmental report and tax returns.

To management accounting basically belongs making the monthly, quarterly, annual reports, calculation any analysis of cost and production cost, headcount, turnover and investment analysis and preparation of other internal data services.

The accounting system is such an indirect business activity, when four indirect business activities accompany creation and marketing of the direct product.
In the training model accounting is almost regarded as a subsidiary server activity.
The accounting information flow has essentially four main flow directions:
- • toward investors, owners,
- • toward tax authority,
- • toward other authorities, e.g. registry court, Central Statistical Office, banks…etc,
- • toward management, supervisory board and auditor.

In more developed market economy countries' legal system accounting regulation has also basically 2 types.

One type includes the so-called "Common-low"structured, basically Anglican countries (USA, UK, Ireland, Canada, Australia), where because of dispositive law, the requirements for reporting are generally not determined in the laws, the applicable rules result from the private sector and developed by the professionals under the practice.
However, the judicial practice is extremely strict in cases, when an account is deliberately falsified, made of purpose of harm to investors, or tracked a tax concealment target.

In continental or German-style legal system countries, however, accounting rules are created for across all areas of economic life and accounting, the private sector's control over accounting control is minimal, the more significant is the dominance of tax and fiscal revenue outlook. For example, the report's form, the expense reports, the property valuation, tax and fee payments are fixed in laws.

An activity if it does not conflict with the law, won't be penalized even if it made significant loss to investors or the budget.

In various countries, in framework of accounting and to this related controls, although different practice and regulation emerged, it can be consistently observed, that while in the financial accounting, the component of power's dominance can be observed, for example taxes, reports, in the management accounting and in a smaller proportion of the reports for example evaluation and production cost calculation, the management of enterprises is entitled to decide within certain limits.

The international / domestic / internal regulations, rules and standards determining the accounting information system are the basis by the developed market economies – in spite of the country-specific features – of preparing reliable financial reports and tax return, which is ensured by of the economic events made documents' and processing methods' correctness and completeness.

On this based happens the ownership and administrative control of the company's operations, accounts and returns.

Audit is an activity designed to obtain information, by which a fact, certain information will be compared to certain requirements (No. 1 Fig.).

No. 1 Fig.: The model of audit's general methodology
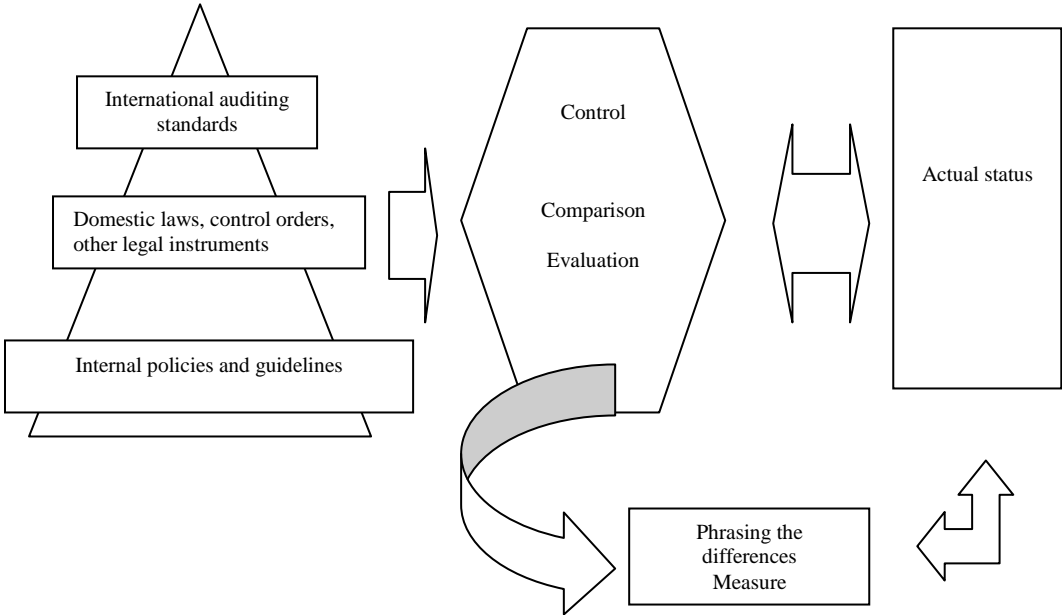
Source: own construction

During the comparison the findings will be evaluated and classified.
If there is a difference from the requirements, for the causes and consequences of these differences an audit finding will be made.

The official control covers the behavior and activities of enterprises, other organizations and citizens', that is in laws, other legislations, mandatory requirements. The official control always deals with examining the compliance of an official legislative requirement.

Within the framework of the European Union's integration, the internationalization of capital, labor and services, as well as result of the so-called globalization, in parallel with the unification of the legislation, the internationalization of the verification procedures, methods, and organizations also took place.

Both by the accounting rules and the monitoring, the international practice have been taken over in Hungary.

In accordance with the international standards, by the control of the financial obligation against the budget, the control of the accounting information system's basis of documents, data processing and end products takes place.

Based on this it can be determined, whether the return and payment of the tax correct or incorrect is.

Then I have defined my fourth thesis, and I have considered my hypothesis justified:

T4: The control of payment obligations to the state budget means the inspection, comparison and evaluation of the certificates constituting the basis of accounting and the process and final products of data processing, on the basis of which it can be stated whether the tax payment is correct or incorrect.

The accounting information system means the basis of reliable financial and tax control, and the expert control of the correctness of tax payment and the exploration of tax deficiencies are only possible on the basis of the accounting records and the information system.

As a continuation of my dissertation I have examined the control authorities, then the so-called, documents based, the estimation's and computer control's internationally accepted and applied practice, and finally the degree of penalty rates against the intentionally tax avoidances and it's deflecting force related to the decisions about tax concealments. I have classified the penalty rate in comparison with the in the German speaking area applied practice, as a result of which I deem the Hungarian system appropriate.

The tax system records and the control in point of both the organization and jurisdiction has undergone in the past significant changes. I have only mentioned the other regulations such as monitoring employment, environment, etc., the performance of businesses, checking the reports related to the management, internal and the auditor's control of the business, it's explanation in the framework of my thesis I do not consider to be my job, I examine only the so-called tax administration apparatus.

At present, in Hungary, the bulk of tax revenue is handled by the APEH (Tax and Financial Control Administration) (approx. 80-83%), and beyond that VPOP (Hungarian Customs and Finance Guard) (12-15%) and municipalities (5-6%) also have significant tax revenues.

While APEH basically financial accounting and information tools has by it's inspections, VPOP has full investigative law and criminal toolbar as well.

After reviewing the residency verification, tools and methodologies I have come to the conclusion, that currently in Hungary used and on documents based and also it's supplementary estimate and computer control fits with the internationally accepted and applied practices and standards.

Tax evasion techniques are detectable without fundamental changes of the current audit methodology and the basic infrastructure.

It is able to uncover the accounting deficiencies, faulty operational mechanisms and algorithms, that cover methods of tax avoidance schemes.

> T5: Completing the traditional method of records and analysis with computer control and applying more and more advanced control software programs, such accounting defects, faulty operating mechanisms and algorithms can be explored which would be difficult to discover or could not be discovered at all through traditional control.

However, if the current control practices continue, greater exploration of the hidden economy can only be achieved by a large increase of control apparatus and control input or by perfecting the selection system.

The punishment practice used against deliberate tax avoidance and the penal rate rate (π) I have found appropriate from the perspective of the domestic and international legal practice, I do not consider fundamental change to be necessary, despite the protracted court proceedings so much harm on the penalty rate's deflecting force related to the tax concealment will, in case of it's rapid application.

The Hungarian researches that I have reviewed presumed, that more than half of the shadow economy is of failing accounts, fictitious invoices and expense reports. Labor tax evasion's significant occurrence and magnitude can also be observed, but it's ratio decreased in the latter period compared to the earlier, because of the taken measures, e.g. opportunity of casual employment, a significant increase of the penalty rate rate (π), the employer's exclusion from procurement in case of committing employer irregularities, strengthening the control authorities.

The tax avoidances related to revenue and account usage affect basically the value added tax, corporate income taxes and special taxes - by private entrepreneurs the personal income tax .

The far-reaching deliberate tax avoidances, the so-called tax evasions decisively affect the value added tax, which is a typical trend of the European Union. The total tax loss because of tax avoidances is of EUR 200-250 billion in the European Union, about one third of it is related to the value added tax.

For these reasons, related to the VAT audit I have developed my risk analysis model using databases, it is an option, by which the risk of getting caught (p) may be so increased, that it won't significantly increase the costs of control.

The program operates in the following environment:

● DATABASES:

The IT databases essential for risk analysis are already available for tax authorities: A_y = $(A_1........A_n)$

● IT BACKGROUND

At present, the electronic tax return system already works, the APEH'S nationwide data network has been overlaid on the Electronic Government Backbone Network, a secure data transfer and call access system has been also built up.

● RISK ANALYSING PROGRAM – SOFTWARE

I have managed to prove, that the necessary database, the IT background as well as the risk analysis program is available or can be created at a relatively low cost, with which the critical taxpayer's circle engaged in tax avoidances can be selected and identified, without substantially increasing the control costs.

> T6: The database, the information technology background as well as the risk analysis program - with which the critical circle of tax avoiders can be sorted out and identified without a significant increase in costs - is available or rather can be established at relatively low cost.

If the EXISTING database of sales and acquisitions are also available, according to the arbitrary given collate aspects $f\Sigma K$ $f\Sigma = (K1-Kn)$, the software's preparation is investment need. I have defined the collate aspects in my model, which can be arbitrary expanded and changed.

The operation of the model is illustrated on No. 2 Fig.

No. 2 Fig.: Operation of the risk analysis model (AKA) using databases
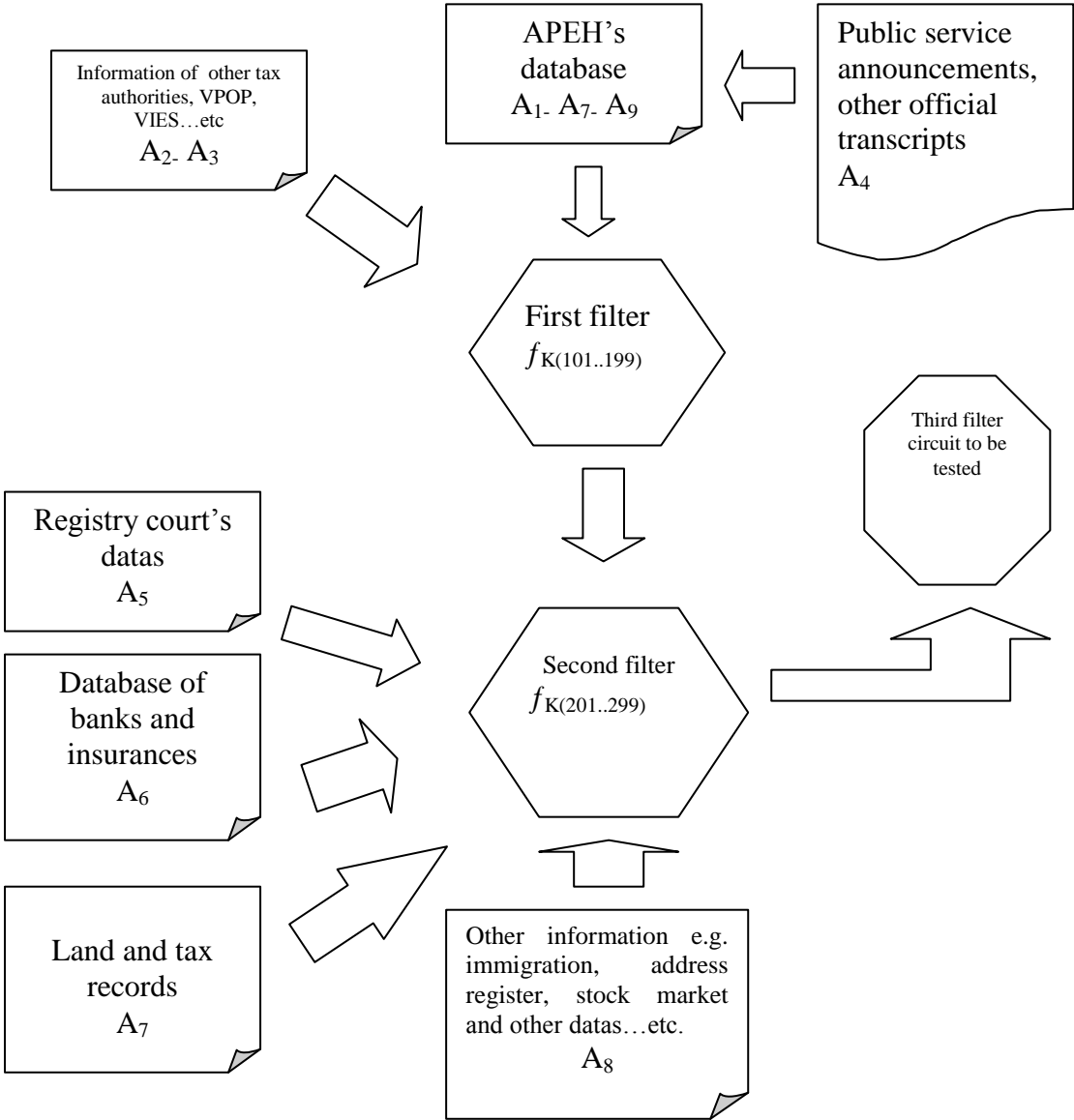
Source: own construction

The model' theoretical operation can be written as follows:

$$(X_y) = f_k\{\sum A_z\}$$

where:

$X_y =$ those selected y:(1…n) No. taxpayers, that meet the given conditions after collating the databases

$f_k =$ those k:(1…n) No. function of collate conditions, that are given at the

appropriate screening level when setting up the program
A_z = those z:(1...n) databases, on which the collate conditions will be tested
n = ∞ (infinity)

The examination of the businesses getting after two levels of filtration into the third filter, the so-called high-risk taxpayers, may be done in the framework of the traditional comprehensive or objective test, and also by using computerized monitoring and control program.

For the model's practical utilization I have made a data collection about the businesses committing in the past 2 years large amounts of VAT and tax evasion, and carrying on test data related to 30 cases I have completed the operation test of the model. After examining the model's test data, it can be concluded, that the test data was consistent with the pre-defined database and collate requirements, the average positive screening result was 3.43 conditions, namely the possibility of tax avoidance, as the first species of error would have been explored. The above mentioned analysis and test results have confirmed my hypothesis, that:

> T7: As a result of the extremely high number of taxpayers, the order of magnitude of tax avoidance as well as the bottleneck of controlling capacities, the category of the value-added tax as budget income seems to be a high-priority control area on the part of tax authoritites.
> Through the application of the for this tax category developed risk analysis modell (DRA, in Hungarian AKA) and through the suitable selection of the filtering parameters, the circle of critical taxpayers - that means high risk from this tax category's point of view - can be significantly restricted and identified.
> The tax returns and accounting information systems of these companies must be reviewed within the framework of an out of turn inspection on the site, hereby preventing the company from failing to pay the tax or claiming the tax without a title.

Increasing the risk of getting caught - as I have verified it in my model presenting the decision of deliberate tax evasion – will cause a major setback in the decision of tax concealment.

Then, I have developed the risk management model (AKA) with application of other database and collate aspects for a wealth test to reveal subsequently the hidden economy.
The model's use in this area would significantly contribute to the exploration of the shadow economy by revealing the wealth implemented of untaxed income realized, it would reveal tax evasion itself! Hereby, the possibility of getting caught is delayed in time, thus it's probability (p) can be significantly increased!

> T8: The application of the AKA model can be also usable for the financial growth investigation serving the subsequent revelation of the hidden economy.
> With this special investigation method, combining it with inspections on the spot and estimation procedure, application of the risk analysis model and objective oriented selection of the filtering parameters, the circle of critical taxpayers, which previously made significant pre-tax profits, can be also subsequently identified.

Finally, I have investigated the possibility, whether my risk-analysis based model could be developed to explore other taxes, e.g. corporate income tax, use of subsidies, control of contributions, formal employment, cases of corruption, untaxed incomes rescued to tax havens income, in accordance with the presented principles?
I have found to be so, which specifies the further direction of my research.

5. USES OF THE RESEARCH'S RESULTS

In my opinion, the results of my research can be utilized in practice for three main areas:
- in economic management and legislation
- in regulatory control apparatuses
- in educational institutions for finance/accounting professionals

Economic management and legislation:

The suppression of the hidden economy, the black economy's so-called whitening may significantly contribute also to reducing the tax burden, as broadening the tax base has been an objective for economic policy for years.

In the tax systems' comparative analysis I have pointed out, which Hungarian characteristics differ significantly from the tax practice of the developed Western European and other OECD countries.

Not only the taxes' extremely high level, but also their composition and complexity contribute to the high level of the hidden economy.

The distorted market conditions disadvantage the economy's normal operation, transparency is a will return.

In the current competition of international economic, financial, and capital it is essential, that our tax and tax administration procedures don't approach to the practice of international or our competitors.

In my dissertation I have pointed out the differences, so my study can be a useful source of work for economic policy makers by making decisions in respect of the future.

In the deliberate tax evasion's theoretical model I have pointed out and proved by practical information, that fiscal management must so establish the control apparatus, the likelihood of getting caught and the amount and kind of the penalty, that by making decisions the taxpayer would choose the total tax return in an increasing proportion, so that the tax revenues would grow even without increasing the tax rates.

In my work I have called attention to the fact, that the current length of court practice how reduces the penalty rate's otherwise appropriate deterrent effect from tax evasion. Shortening the legal processing time would at the same time improve the litigation practice's efficiency and would also reduce participation in the hidden economy.

I believe in that from the additional tax revenues realized tax rate reduction and tax system's simplification, a significant increase in the risk of being caught, increasing the penalty rate and shortening the judicial proceedings, as a complex set of measures can take out from the current overtax / high hidden economy / low-growth trap.

Regulatory control apparatuses:

The control apparatuses using my - during my thesis created - "AKA" model, could gain several practical results.

Applying the available databases and collate criteria the range of fictional invoice issuers and recipients could be significantly narrowed.

Control could also get systematically to those businesses, which for now are not in the attention of supervisory authorities, as they do not reclaiming VAT, are not a loss, do not alter the seat…etc.

By running with each other the tax payers' sale (•A9• K101), it is certain to determine the scope of those taxpayers, who use it's purchases or sales to conceal the hidden economy. For example: fictitious customers, fictitious suppliers, fictitious goods, deliberate tax avoidance.

The identification of the so-called high-risk taxpayers, using the so-called risk analysis model would contribute, that a part of the control unit could be used for other tasks, e.g. operational controls, invoicing, inventory control… etc., as a smaller part of the available time frame would be necessary to be selected and prepared for control compared to the present practice.

If my model would be developed for other areas, such as exploring tax havens and offshore business references, international transfers of related companies, cases of corruption, undeclared activities and employees, the current expensive and sometimes inefficient control practice could be also changed.

In my view, with the identification of tax avoidance's range, practical application of my program, the available control capability and background it would be possible to significantly reduce the current level of the black economy and the tax evasion without a substantial increase of control's expenditure.

In educational institutions
The third area of my dissertation's practical utilization is higher education.
In my view, cognition of the presented methodology can contribute to a more thorough preparation of the students in higher education and who wish to find a job later in financial fields.

In this paper summarized and reported theoretical and practical knowledge and as the research's result created new or novel findings may provide a useful source of information for students and teachers as well, who write thesis in this field or wish to do some research.

By processing my risk management program in framework of a case study, by developing it for other taxes and procedures by students', it can give the students such practice-oriented theoretical knowledge, that after taking their jobs they can utilize efficiently in their corporate or official verification activities.

REFERENCES

1, Allingham, M. G. - Sandmo, A [1972]: „ Income tax evasion: theoretical analisys"
   Journal of Public Economics, No. 1 (1972) pp. 323-338
2, Andreas Haufler[2004]: Taxation ina Global Economy,
   Cambridge University Press 2004
3. APEH tapasztalatok   a vagyonosodási vizsgálatokról [2008]
   Saldó Pénzügyi Tanácsadó és Informatikai Zrt. kiadványa (2008),
4, Artur B. Laffer [2004]: The Laffer Curve: Past, Present, and Future,
   The Heritage Foundation, June 2004
5. Áfa csalások az Európai Unióban www.nbh.hu/bmenu6n.htm
6, Árvai János –Vértes András[1994] A magánszektor és a rejtett gazdaság súlya
   Magyarországon Statisztikai Szemle (1994) pp. 517-529
7, Bakos Péter, Bíró Anikó, Elek Péter, Scharle Ágota [2008]: Hatékonyság és
   arbitázslehetőségek a magyar adórendszerben
   Kormányzás, Közpénzügyek, Szabályozás III. évf. (2008)pp. 80.
8, Balázs-Bokros-Bosnyák-Gyenge-Győrffi-Hegedüs-Kováts-Lakatos-Lukács-Madarasiné-
   Matukovics-Nagy-Ormos-Pavlik-Pál-Rózsa-Székács-tardos-Veres [2006] Az IFRS-ek
   rendszere MKK Oktatási Központ Budapest (2006)
9, Bartók Nagy András [1997] Vezetői Számvitel Saldo Budapest (1997)
10, Báger Gusztáv [2006]: Az állami szerepvállalás új vonásai a XXI. század globalizált
   világában Stratégiai kutatások – Magyarország 2015 Ú-M-K (2006)
11, Becker G. S. [1976] The Economic Aproach to Human Behavir University Press
   Of Chikago-London (1976)
12, Bedekovics István[2005]: A GDP adatok megbízhatósága-előadásMagyar Statisztikai
   Társaság és Magyar Közgazdasági Társaság „ feketén-fehéren a rejtett
   gazdaságról" című közös tudományos ülés 2005.
13, Belyó Pál [1995] A „rejtett gazdaság" fogalma és súlya
   Társadalomtudomány 33 K (1995)
14, Belyó Pál [1995] A „rejtett gazdaság" elvi kérdései
   Belügyi szemle 13. Különszám (1995)
15, Belyó Pál [1998] The hidden economy in Hungary Hungarian Statistivcal Review No. 18.
   (1998) pp. 125-133 .
16, Belyó Pál [2003] A rejtett gazdaság lakossági megítélése
   Staisztikai Szemle 81. évf. No. 7. 521-541 p. (2003)
17, Belyó Pál [2003] A rejtett gazdaság nagysága és jellemzői
   Staisztikai Szemle 86. évf. No. 2. (2008) pp.113-137
18, Belyó Pál [2008] A „rejtett gazdaság" természetrajza
   Saldó Pénzügyi tanácsadó és Informatikai Zrt. Kiadványa 2008.
19, Besley, T. [2006]: Principled Agents? The Political Economy of Good Government,
   Oxford University press New York
20, Botos Katalin[2008] Fiskális politika funkciói Pénzügyi Szemle 2008/3
21, Brennan G. - Buchanan J.[1993] : Adózási alkotmány Laviatán számára Megjelent
   Semjén András Adózás, adórendszerek, adóreformok
   Szolpolitikai értesítő (1993) 1-2 81 pp. 102
22, Budai Eleonóra [2007] A számviteli rendszer helye és szerepe változó világunkban
   Doktori Értekezés Pécsi Tudományegyetem Közgazdaságtudományi kar pp.21-22
23, Chadwick, L. [1999] Vezetői Számvitel
   Panem-Prentice Hall UK, Budapest (1999)
24, Cullis, J - Jones, P [2003]: Közpénzügyek és közösségi döntések

Aula Budapest (2003)

25, Czibik Á- Medgyesi Márton [2007] A lakosság nyugdíjjal kapcsolatos hajlandósága.
Egy lakossági kérdőíves felmérés eredménye.
MKIK GVI Budapest 71 P. November (1977)

26, Czakó Ágnes[1997] „Négy város négy piaca. A népi kereskedéstől a kgst-piacokig"
Közgazdasági Szemle XLIV évf. Április(1997) pp. 293-320

27, Drowin, L.[1991]: The Taxation of Low – Income families: The United States Experience
OECD Paris (1991) pp. 103-118

28, Drury, C. [1992] Management and Cost accounting
Chapman and Hall London (1992)

29, Elek Balázs [2007] Gazdasági bűncselekmények
Debreceni Itélőtábla Vázlat Május (2007) pp. 14.

30, Elek P. – Scharle A -Szabó B.- Szabó P. [2008] An estimation of undeclared employment
in Hungary based on administrative data. Manuscript, Prepared as part of the World
Bank project: Hungary Undeclared Employment April (2008)

31. Európai Uniós irányelv a fordított Áfa fizetéséről67/227/EGK irányelv és 67/228 EGK
Irányelv http//: EUR-LEX.europa.eu

32, Fazekas Mihály [2008] A rejtett gazdaságbol való kilépés dilemmái
Esettanulmány – budapesti futárszolgálatok 2006-2008
MT-DP 2008/12

33, Fleming, M Roman, J and Farrel, G [2000] The Shadow Economy,
Journal of International Affairs, Spring (2000) No. 53/2

34, Friedman M. [1962]: Capitalizm and Freedom.
The University of Chicago Press, (1962) pp. 172-176

35, Galántainé Máté Zsuzsanna [2006] Adó(rendszer)tan EU-konform magyar adók
Aula Kiadó (2006) pp.213-269

36, Harenberg, Bodo[1990] Az emberiség krónikája Oficina Nova kiadó Budapest (1990)

37, Helgertné Dr. Szabó Ilona- Kurcsinka Tamásné [2008] Pénzügyi számvitel
Saldo Pénzügyi Tanácsadó és Informatikai Zrt. Kiadvány (2008)
pp.202-210

38, Hetényi István [2006]Az adórendszerek és az adóigazgatás
Ú-M-K 2006

39, Huszti Ernő [1998] Makropénzügytan alapjai
Veszprémi Egyetemi Kiadó (1998)

40, Jones, Mike [1994] A forgotten casualty of Pacioli's system?
Management Accointing (1994)

41, Kermit D. Larson- Paul B. Miller-Michael Zin-Morton Nelson[1991] Financial
Accounting Principles Richard D. Irwin INC. Boston USA (1993)
pp. 764-801

42, Klitgaard R. [1988] Controlling Corruption University of California Press Berkeley-Los
Angeles –London (1988) pp. 26-27

43, Kovács László [2009] Előadása a Magyar Okleveles Adószakértők Egyesületének
(MOKLASZ) konferenciáján 2009.06.11-én. www.origo.hu

44, Kohler, E. L. [1970] A Dictionary for Accountatnts
Prentice Hall INC, New Yersy (1970)

45, Kreko Judit – P. Kiss Gábor[2007] Adóelkerülés és a magyar adórendszer
MNB-tanulmányok szeptember (2007)

46, Kreko Judit-P. Kiss Gábor[2008]: Az adóoptimalizálástól az optimális adójogig-első
lépés Adóelkerülés és a magyar adórendszer MNB munkaanyag (2008)

47, Landreth, H. – Colander D.C. [1994] History of Economic Through

Houghton Miffin Company Boston (1994)

48, Lee T.A. [1990] A systematic view of the history of the world of accounting
                      Business and Financial History (1990)

49, Lackó Mária [1992]: Az illegális gazdaság aránya Magyarországon 1970 és 1989 között
                 Egy monetáris modell Közgazdasági Szemle 39. évf. (1992) pp.486-510

50, Lackó Mária [1995]: Rejtett gazdaság nemzetközi összehasonlításban (Becslési módszer a
                 háztartási villamosenergia-fogyasztás alapján) OECD országok
                 Közgazdasági Szemle (1995) pp. 486-510

51, Lackó Mária [1998]: Rejtett gazdaság a visegrádi országokban = A túlzott
                 központosítástól az átmeneti gazdaságig KJK Budapest (1998)

52, Lackó Mária [2000]: Hidden Economy – An unknow yuantity: Comparative analisys of
                 hidden economics in Transition countries 1989-95
                Economics of Transition 8/1(2000) pp. 117-149

53, Lackó Mária [2008] Az adóráták és korrupció hatása az adóbevételekre nemzetközi
                 Összehasonlítás (OECD országok 2000-2004) MT_DP 2008/8

54, Le Grand, J.[1999] A kormányzati kudarcok elmélete
             Megjelent Csaba István-Tóth István György (szerk.): A jóléti állam politikai
             Gazdaságtana Osiris-Láthatatlan Kollégium Budapest pp. 146-164.

55, Lucas Robert E. [1984]:Rational Expactations and Econometric Practice,
             Minneapolis Univ. Of Minnesota Press, 1984

56, Lukács Ottó[2006] Matematikai statisztika
             Műszaki Könyvkiadó Kft. Budapest (2006)

57, Magyar Statisztikai Évkönyv KSH 2006, 2007, 2008

58, Marján Attila [2005] Európa Pénzügyei
             Sanoma Kiadó Budapest (2005)

59, Nemzetközi Számviteli Tankönyv IFRS-ek rendszere
    Magyar Könyvvizsgálói Kamara Kiadványa 2006

60, OECD Factbook [2009] ISBN 978-92-64-05604-6 OECD (2009)

61, Ondracek Dieter[2008] Pénzügyi Dolgozók Európai Uniójának (UFE) Budapesti
               konferenciáján elhangzott előadása
               Verlag Dashöfer Online 2008-09-24 08:45:01.

62, Őry Tamás [2003] Az Európai Unió Adójoga
              Osiris Kiadó Budapest (2003)

63, Paul A. Samuelson William D. Nordhaus: Közgazdaságtan
              KJK-Kerszöv változatlan utánnyomás (2003)

64, Pál Tibor [2006] Speciális számviteli eljárások
              Econoix Kiadó (2006)

65, Porter M.E.- Miller V.E. [1985] How information gives you a competitive advantage
              Harward Business Reciew 63 (4) pp. 149-160

66, Poterba James R.[2004] Recent Developments in and Future Prospects for Public
              Economics – New Frontiers in Economics Camridge University Press (2004)
              pp. 185-285

67, Sandmo, A. [1976] „Optimal Taxation. An Introduction to the Literature"
             Journal of Public Economics 6.

68, Schneider, F and Enste D.[2002]:The Shadow Economy: Theoretical Approaches,
             Empirical studies, and Political Implications
             Cambridge University Press 2002

69, Schneider F.[2005] Rücklaufige Schattenwirschaft in Deutschland, Österreich und in
              anderen OECD Landern Fluch oder Segen Johannes Kepler Universitat Linz (2005)

70, Semjén András- Szántó Zoltán- Tóth I. János [2001] Adócsalás és adóigazgatás

Tanulmány MTA – KTK (2001)

71, Semjén András-Tóth István János- Makó Ágnes [2008] Az alkalmi munkavállalói könyves foglalkoztatás és a rejtett gazdaság kapcsolata MT-DP 2008/11

72, Semjén András-Tóth István János- Medgyesi Márton- Czibrik Ágnes [2008] Adócsalás és korrupció:lakossági érintettség és elfogadottság MT-DP 2008/13 p. 36.

73, Sik Endre [2000] KGST piacok és feketemunka Magyarország 1999. Elemzések a rejtett gazdaság magyarországi szerepéről
2. tanulmány MTA KTI Budapest Július p.29 (2000)

74, Sik Endre [2002] „Mindennapi korrupciónk”
Szociológiai Figyelő VI. évf. 1-2 sz. pp. 131-145

75, Sigloch, J. [2006] Rechnungslegung – Jahresabschluss nach Handels und Steuerrecht und internationalen Standarnds US Uni Bayreuth (2006)

76, Slemrod, J. Yitzakhi [2000] Tax avoidance, evasion and administration,
NBER Working paper 7473

77, Stiglitz, J.E. [2000]: A kormányzati szektor gazdaságtana KJK-Kerszöv, Budapest

78, Stiglitz, J.E. [2000]: A kormányzati szektor gazdaságtana KJK-Kerszöv, Budapest

79, Szabó Attila- Gulyás László- Tóth István János [2006] Az adócsalás elterjedtségének változása- becslések a TAXSIM ágensalapu adócsalás-szimulátor segítségével GVOP 3.2.2 tanulmány

80, Szántó Zoltán- Tóth István János [2001]: A rejtett gazdaság és az ellene való fellépés tényezői Közgazdasági Szemle XLVIII. Évf. (2001) március pp. 213-218

81, Taxatiton trends in the European Union [2007] EUROSTAT statistical books
European Comission Taxation and Customs Union
http//epp.eurostat.ec.europa.eu/cacheTITY_OFFPUB/KS-DU-07-001/ EN/KS-DU-07-001-EN.PDF

82, Taxatiton trends in the European Union [2008] EUROSTAT statistical books
European Comission Taxation and Customs Union
http//epp.eurostat.ec.europa.eu/cacheTITY_OFFPUB/KS-DU-08-001/ EN/KS-DU-08-001-EN.PDF

83, Tonin, M. [2006] Minimum Wage and Tax Evasion: Theory and Evidence,
manuscript Stockholm University (2006)

84, Urban Janisch [2006] Schattenwirtschaft in Transformationswirschaften – Eine kritische Betrachtung am Veispiel der ungarischen Volkswirtschafts
Verlasg Dr. H.H. Driesen Gmbh. Taunusstein (2006)

85, Yamey, B.S. [2005] The Historical Significance of Double-entry Bookkeeping: Some Non-Sombartian Claims Accounting, Business & Financial History Vol. 15 No. 1

86, Vígvári András[2005]: Pénzügyi ellenőrzés- egy funkció több szerepben
Budapesti Műszaki és Gazdaságtudományi Egyetem kiadványa Budapest

87, Vígvári András[2008]: Pénzügy(rendszer)tan Akadémiai Kiadó Budapest (2008)

88, Vitál Attila [2006] Kutatásmódszertan kézikönyv és példatár
Krúdy Könyvkiadó és Nyomda Nyíregyháza (2006)

89, Vörös László[2002] Az ellenőrzés rendszere és módszertana
Perfekt Gazdasági Tanácsadó, Oktató és Kiadó 306/2002

90, Wicksell, K. [1958]: A New Principle of Just Taxation Megjelent: Musgrave, R.A. Peacocock, A.T. : Classics int he Theory of Public Finance, London, MacMillan

A SZERZŐ DISSZERTÁCIÓHOZ KAPCSOLÓDÓ PUBLIKÁCIÓI

1, Nagy Gergely [2009] Az ÁFA csalások feltárásának számviteli és informatikai lehetőségei
Gazdasági és társadalomtudományi közlemények Krúdy Könyvkiadó (2009)
ISSN: 2061-3156   ISBN: 978-963-9891-09-8

2, Nagy Gergely[2009] „PPP" Investments – inspection and Qualification in Hungary
International Congress on the Aspects and Vision of Applied Economics and
Informatics
(ISBN: 978-963-502-897-9)

3, Nagy Gergely [2008] „Adózás és költségvetési fizetési kötelezettségek módszertana és
informatikai támogatottsága"
Nyíregyházi Főiskola Gazdasági és Társadalomtudományi Kara Kiadványa
(ISSN 1787-7113)

4, Nagy Gergely [2008] „ 'PPP' INVESTMENTS - INSPECTION AND
QUALITIFICATION IN Hungary
International Journal of Public-Private Partnership (2008)
(ISBN 978-1-84387-286-3)

5, Nagy Gergely [2008] „PPP beruházások elszámolásának ellenőrzése és minősítése"
Nyíregyházi Főiskola Gazdasági és Társadalomtudományi Kara
(ISSN 1787-7113   ISBN 978-963-9909-06-09)

6, Nagy Gergely [2008] „PPP beruházások ellenőrzése és minősítése"
Debreceni Egyetem Agrárgazdasági és Vidékfejlesztési Kar által szervezett
"Hagyományok és új kihívások a számvitel területén" 2008.10.09-10
Konferencia kiadvány

7, Nagy Gergely [2008] „PPP beruházások elszámolásának és ellenőrzésének
ellentmondásai"
Miskolci Egyetem 2008.11.13-i Doktorandusz fórum kiadványa

8, Nagy Gergely [2008] PPP beruházások elszámolásának ellenőrzése és minősítése
INVENTÁRIUM A tudásteremtő fakultás eredményei (2008)
ISBN 978-963-9909-06-9 ISSN: 1787-7113

9, Nagy Gergely [2007] „ A PPP-beruházások elszámolásának ellentmondásai"
Nyíregyházi Főiskola Gazdasági és Társadalomtudományi Kara Kiadványa
(ISSN 1787-7113)

10, Nagy Gergely [1990] Számítástechnika az Ellenőrzés szolgálatában
Budapesti Közgazdaságtudományi Egyetem Budapest Doktori értekezés

11, Nagy Gergely [1988] A mikroszámítógépes adatfeldolgozás és ellenőrzés
Számvitel és Ügyviteltechnika 1988. 10. szám