

**NATIONAL UNIVERSITY OF PUBLIC SERVICE**

**Ph.D. Council**

**MAJOR ANDREA PAP**

**THE ASPECTS OF THE ECONOMIC MANAGEMENT OF THE MINISTRY OF  
DEFENCE IN THE PERIOD BETWEEN 2005 AND 2011**

Ph.D. Thesis

Summary

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## **IDENTIFICATION OF THE SCIENTIFIC PROBLEM**

Following our accession to the North Atlantic Treaty Organisation in 1999 and to the European Union in 2004, Hungary did not only have to account for the funds spent on defence but it also had to meet the international expectations stemming from the two memberships. The budget management of the defence portfolio was under dual pressure in order to meet the requirement of participation in the multinational operations and missions of the Alliance, and to meet the EU requirement of a balanced budget management. Moreover, the management of public finance has not only been affected by our obligation to meet the requirements of these two organisations but also by the global economic crisis in 2008. As a consequence of the economic crisis Hungary's defence budget has had to be cut again and again, as a result of which some tasks have had to be rescheduled or have been abandoned altogether. In addition to the crisis our already growing public debt also had an adverse effect on the amount of money available for defence. As a result of all this, improving the effectiveness of budget planning and management became a priority.

The subject of the essay is a **scientific problem** of practical relevance, which can be phrased as follows: **finding and filling with content a set of statistical tools which can provide a wide spectrum of innovative scientific achievement and which is suitable to provide help for the decision preparation tasks of the MoD and enables the decision makers to take economically relevant decisions.**

## **THE RESEARCH OBJECTIVES**

**Describing the planning process** of budgetary institutions within the system of public finance. **Systematizing** the planning of defence expenditure and budget estimates and examining the elements of the system. **Exploring** the budgetary aspects of the defence policy and NATO requirements.

Systematic **processing** of the multitude of data of the MoD budget estimate (2005-2011) and **creating** an information base which facilitates economic analysis.

Having created the information base, **developing** a set of statistical tools of scientific value and capable of providing results, the **innovative use** of the set of tools and finally drawing up **conclusions**. Creating the concept of budget use efficiency level change.

Comparative study of the defence spending of NATO and non-NATO member countries.

The dissertation is based on an economic analysis using **descriptive statistical tools**. It is not concerned with such types of economic analysis as business management approach or analyses based on value analysis and effectiveness and efficiency studies, which could be the topics of separate dissertations.

## **THE HYPOTHESES OF RESEARCH**

1. The multitude of economic data of the MoD (Chapter XIII of the annual acts on the state budget) can be organized in a rearranged system which lends itself to targeted, mathematically manageable analysis.
2. It is possible to create a set of statistical tools which is suitable for facilitating the preparation of decisions and helping decision makers by widely exploring the budget management of the MoD.
3. It is necessary to create a new concept containing economic quantification which will enable the measurement of the change in efficiency.

## **THE METHODS OF RESEARCH**

In order to achieve the research objectives, I used general research methods and specific methods required for the investigation of the topic, paying special attention to the innovative use of descriptive statistical tools. Due to the nature of the topic, my dissertation can be classified as a type of applied research. The methods I used include the following: library research, targeted analyses, analysis and synthesis, induction and adaptation.

- I **studied** the theoretical sources and the domestic and foreign special literature relevant to the topic;
- I **consulted** the experts who created and operate the Defence Planning System of the MoD, I **examined** the sub-systems of the planning system, as well as the factors that affect the planning process;
- I **created** a system of statistical tools and methods with the help of which I **analyzed** and **evaluated** the economic management of the MoD;

- After examining the amount of defence spending, I carried out a comparative analysis with the defence spending of other countries;
- I **synthesized** the empirical data and created a concept to describe the dynamics of economic management and I also **drew inferences**.

## CHAPTER BY CHAPTER SUMMARY OF THE DISSERTATION

In the first chapter of the dissertation I explained why the topic is currently of interest and identified the scientific problem. In connection with the problem, I specified my research objectives, formulated my hypotheses and finally determined the research methodology to prove my hypotheses.

In the second chapter I described the foundations of the budgeting of the MoD, including the system of Hungarian public finance, the essence, the basic principles, the methods and the techniques of budget planning. In connection with this, I examined the planning periods and methods of the MoD, the Defence Planning System of the Defence Portfolio as well as the integrated defence planning process. I also described the security policy environment in which the MoD's economic management activity was carried out during the period between 2005 and 2011, which I examined. I collected those NATO summits from our accession in 1999 to the present which Hungary attended and where we made pledges. I analysed the budgetary aspects of these pledges regarding the period between 2005 and 2011.

In the third chapter I examined the budget management of the MoD in light of the tasks. I defined the concept, the necessity and the aim of economic analysis. I described its importance and its sources of information and in connection with this I studied the tasks of the economic analysis of budgetary institutions. I created a data base which served as the basis of the analyses. Using this data base and the tools of descriptive statistics (ratios, description, GDP percentage change etc.) I analysed the budget management of the MoD over time. I carried out a spatial budget comparison of NATO members, non-NATO members and Hungary. I created the adapted concept of efficiency change which makes it possible to measure the change in some supply over time and space. While doing my investigation into the topic, I only examined the change in efficiency over time, which I supported by numerical

data. Through this, I showed the dynamics of change as a function of time, an independent variable. During my study I calculated some indicators, represented these data by a trend function and in this way I was able to draw inferences and make predictions for the future. In conclusion, I calculated and represented the combined change in remunerations, operating costs and capital expenditures, through which I showed the distribution of the ideal budget ratio of 40:30:30. Taking into account the convergence programmes and Government Decision No.1046/2012, I made calculations concerning the possible distribution of the budget estimates of the MoD until 2016.

In the fourth chapter I summarized the inferences drawn from the findings of my investigation, which can be found in the following part.

## **SUMMARY OF CONCLUSIONS**

The aim of writing the dissertation and identifying my research objectives was to show the relationship between budgetary institutions and public finance, the types of defence expenditure and the method and temporal process of planning budget estimates because it can give us a complete picture of the relationship between the MoD and public finance. A further aim was to examine the direction and size of the change in efficiency that the MoD experienced.

I established that national defence is a public duty and therefore the state has an obligation to play a role in it. Since defence is a public good, its consumption cannot be withheld from anyone, it is non-excludable and non-rivalrous.

Examining the Defence Portfolio Defence Planning System (DPDPS), I observed that it has a close relationship both with public finance through budget management and with government decisions since all budget-related measures have to go through the Budget Planning Subsystem.

I pointed out that in addition to the above, the commitments and obligations stemming from our membership in the Alliance also have an influence on planning. The Ministerial Directives and 10-year plans formulated on the basis of the tasks and priorities laid down in the National Security Strategy and the National Military Strategy serve as a starting point for the annual planning. The subsystems of the DPDPS – based on the above described factors –

are capable of preparing long-, medium- and short-term strategic and operative plans in the integrated defence planning process that serve as a basis for carrying out the economic management activity.

I proved that planning and achieving the budget estimates will not be in line with each other before resource projections are better established and economic stability is achieved because in the absence of these the governments of any given time can use such tools to maintain the equilibrium (blocking and withdrawal of funds) which will make it impossible to manage the already tight budget.

I supported with data the fact that already when planning the annual budget such low budget is set that certain areas of the economic management of the portfolio (e.g. development) are underfinanced. The provision of various types of financial support and additional estimates for the portfolio does not help the situation because it is still impossible to carry out all the planned tasks. During my investigation I also found that in the course of the year new, unplanned tasks arise, the funding of which has not been included in the budget and the defence portfolio carries out these tasks by the reallocation of funds “in-house”. In my opinion, this under-financing is also due to the fact that Hungary is unlikely to receive a direct external threat – which is also set down in the previous and the current National Security Strategy – and as a result, less funding is required for national defence. However, how much of the national economic performance is redistributed is also a determining factor.

I carried out the systematization, special adaptation and synthesization of the MoD budget estimates and they now show data that have practical use. With the help of this data base, I carried out the analysis using descriptive statistical tools. In order to perform this task, I established a set of statistical tools, in an innovative way, which was suitable to make it possible for me to get results which can be scientifically evaluated and which facilitate situation estimation, the preparation of future decisions, decision-making and the enforcement of interests.

During the analysis I proved and supported with data the fact that the distribution ratios are suitable for showing the changes in each individual estimates group both within the portfolio and broken down into parts. I concluded that in all seven years of the studied period there had been a shift in favour of operating costs rather than capital expenditures. It is also

borne out by the fact that excluding the cost of the Gripen fighter lease, almost 4% was spent on development in 2011 and even including the cost of the Gripen lease, it was only 14.94%.

For the purpose of establishing the efficiency level change of the integrated budget (remunerations, operating costs, capital expenditures), I used the intensity ratios, which as complex intensity ratios show to what extent the ratios of the period under consideration changed compared to the ratios of the base period. The efficiency level change showed in a complex way the dynamics of the change in operating costs and capital expenditures, the supporting of which with statistical data also showed the absolute size of the change. On the basis of these I established that the operating expenditures increased, with minor fluctuations, at the expense of capital expenditures, while actual total spending continuously decreased. Analyzing the operating expenditure of the MoD (including the cost of the Gripen lease) and regarding 2005 as the base year, I found an increase of 56.47% for 2011, while in the case of the Hungarian Defence Forces I found a decrease of 32% when I examined the same indicator. In total – combined with the other organisations – the increase was almost 9%. An examination of the capital expenditures (excluding the cost of the Gripen lease) proves the above statement because there was an almost 70% decrease in the already tight budget. I carried out the same analysis using chain ratios in order to see the change compared to the previous year. I found that from 2010 to 2011, for instance, there was a decrease of 11% in operating expenditures and a decrease of 64.7 in capital expenditures.

Using the indexation method, I showed how the real value of the budget changed in each year after the adjustment of the Consumer Price Index. The data I got using the base ratios revealed that compared to 2005 there was a decrease of 16% in the nominal value of the budget in 2011. If we look at the (inflation-adjusted) real value of the same data, the situation is even worse because I found a decrease of almost 38% from 2005 to 2011. Analyzing the dynamics of chain ratios, the inflation resulted in a decrease of 16% in nominal value and a decrease of 19.2% in real value from 2010 to 2011. In conclusion, it can be said that the purchasing power of the funds spent on expenditures continuously decreased.

In addition to the statistical indicator, I also fitted the data I represented in a coordinate system with trend functions, which made it possible for me to draw inferences for the future. Extrapolation with the use of functions shows that the downward trend may continue in the future if the Government does not alter the size of budget resources in the coming period and

no political decisions are made which affect economic management and the use of resources during the course of the year.

During my analysis I examined the size of and the direction of the change in the actual budget expenditures of the Defence Portfolio as a percentage of the GDP. I pointed out that both at current prices and at 2005 prices the state contribution to expenditures decreased to such an extent that in both cases defence spending fell even short of 1% of the GDP, although according to the NATO-suggested level 2% of the GDP should be spent on the budget expenditures of the Defence Portfolio. The low contribution of the state explains the fact that there are some areas in the portfolio which are underfinanced (e.g. capital formation, development) because other – operation-related – areas receive more funds since “daily life” cannot stop because of a development project. It can be stated that underfunding is the cause of these disproportions. As a result, there were and there will always be tasks that cannot be carried out. Underfunding and the downward trend are expected to continue until the country’s economy becomes more stable. In order for this to happen, the size of the country’s total sovereign debt amount should be reduced at least to the Maastricht requirement of about 60%, because if public debt is low – e.g. as a result of the reduction of interest charges – it would be easier to provide enough funds for the planned developments and investment in new capabilities.

I did not only compare defence expenditures over time but also over space and so I looked at how the figures for Hungarian defence spending changed compared to other countries (USA, Germany, Austria, Czech Republic, Hungary). I carried out the comparison as percentage of the GDP on the one hand, and as defence expenditures per capita and as percentage of the US defence spending, on the other. I found that in the case of Hungary and the Czech Republic there was a huge decrease in expenditures. I established that even compared to the studied countries the Hungarian Defence Portfolio’s share of the country’s economic performance became increasingly smaller.

I found that as a result of the direction and the size of the budget efficiency level change in the MoD, the quality and condition of the existing technical equipment of the military deteriorated to such an extent that even if in the future 30% of the portfolio’s budget were available for development every year, it would not make a real difference. However, if we would like to increase the proportion of capital expenditures, it would only be possible at



the expense of the operating expenditures, which is doubtful without the revision of the current organisational structure and tasks.

I also carried out the examinations with specific indicators. I found that there was a decrease in per capita (employee) and per head of population actual budget expenditures in both nominal and real value. Breaking down the expenditures into parts and examining the operating and capital expenditures, I found that the nominal value of per capita operating expenditures (including the cost of the Gripen lease) increased by HUF780,000 per person from 2005 to 2011. In contrast, the per capita capital expenditures (excluding the cost of the Gripen lease) decreased by HUF733,000 per person. With a base ratio, the indicator showed an increase of 8.7% in the per capita operating expenditures and decrease of 65.1% in the capital expenditures. I separately examined the payroll and related expenditures and the material expenditures. I found that from 2005 to 2011 there was an increase in nominal value and a decrease in real value in the case of both high priority estimates. The increase in nominal value was the result of downsizing and the increase in the budget estimate, while the decrease in real value was due to the change in the inflation rate.

I worked out the concept of budget efficiency level change and its innovative use. The conclusion of my findings is that the amount of money spent on military equipment and developments in the studied period decreased very significantly and the real value of per capita payroll expenditures and related costs dwindled considerably and this in turn reduced the military forces' supply of factors of production and technology. On the basis of these, in compliance with my definition of the concept of budget efficiency level change, the negative level change over time has been proved.

The conclusion I have drawn is that during the analysis of the aspects of budget management there are some integrated innovative methods which are capable of improving the quality, the perspicuity and the forecastability of economic management, the preparation of executive decisions and the level of the reliability of decision making.

## CONTRIBUTION TO KNOWLEDGE

1. During my study I **proved** that analytical work can only yield realistic results if I use the suitable (sub)set of information and the suitable methods to produce the data which provide the basis for the preparation of executive decisions or, potentially, facilitate making sound decisions or choices when carrying out a professional task.
2. I **systematized** the multitude of data of the budget estimates of the MoD in such a way that served as an information database for economic analyses and this database became suitable for mathematically manageable statistical **analysis**.
3. I **created** the adapted concept of budget efficiency level change which facilitates the availability of numerical data based on the aggregate indicators of the Defence Portfolio for those who are involved in the preparation and the making of decisions.
4. I **assembled** a system of indicators from the set of descriptive statistical tools which **are recommended** for use not only during the analysis of the budget management of the MoD but also that of other law enforcement agencies.

## RECOMMENDATIONS

I recommend the use and the findings of my dissertation to the planning experts in the MoD who are not only interested in what the absolute value of the data show but also want to know what is behind the multitude of data, i.e. what is the direction and the size of the changes that happen in the various items of the budget.

I recommend it for use for educational purposes to those teachers of the National University of Public Service who are involved in teaching economic management-related subjects.

Looking at the possible directions of further research into the topic, I think that additional treatises could be concerned with using the same indicators to examine the “micro-level” of national defence, i.e. the services, the branches and the individual units. Thus, a comprehensive picture of this aspect of the Defence Portfolio would be gained.

Another possible direction would be performing an all-encompassing analysis, using the possibilities given by the working capital approach, completing it with efficiency and effectiveness assessment and value analysis.

## **THE PRACTICAL USE OF THE RESEARCH FINDINGS**

My research findings are extremely useful for decision makers to prepare and support their decisions and for planners to assist the planning process.

Moreover, the findings do not only play an important role in decision making but they also help the defence portfolio to enforce its interests when the budget is allocated.

The set of analytical tools that I created can be useful in the further training of the experts of this area.

## List of Publications

### **1. Pap Andrea**

Egy vállalkozás pénzügyi helyzetének elemzése (Budapest, Bolyai Szemle 2007. XVI. évfolyam 1. szám pp. 110-122., ISSN 1416-1443)

### **2. Pap Andrea**

Egy gazdasági társaság vagyoni helyzetének elemzése (Budapest, Kard és Toll 2007/2 pp. 126-135., ISSN 1587-558X)

### **3. Pap Andrea**

Egy vállalkozás árbevételének és eredményének alakulása, valamint a profitabilitás vizsgálata (Budapest, Hadtudományi Szemle online, 2008. 1. évf. 1. szám, HU ISSN 2060-0437)

### **4. Pap Andrea**

A Befogadó Nemzeti Támogatás és a FOURLOG Logisztikai Képzési Program kapcsolata (Budapest, Hadmérnök, 2009. IV. évf. 1. szám pp. 129-136., ISSN 1788-1919)

### **5. Pap Andrea**

Egy vállalkozás hatékonyságának vizsgálata (Budapest, Hadmérnök, 2009. IV. évf. 3. szám pp. 363-374., ISSN 1788-1919)

### **6. Pap Andrea**

Az e-logisztika kapcsolata a Logisztikai Szolgáltató Központokkal (Budapest, Hadmérnök, 2009. IV. évf. 4. szám pp. 100-107., ISSN 1788-1919)

### **7. Pap Andrea**

The necessity of economic analysis (Budapest, Bolyai Szemle 2010. XIX. évf. 1. szám pp. 167-177., ISSN 1416-1443)

### **8. Pap Andrea**

A költségvetési szervek gazdálkodásának elméleti aspektusai I. (Budapest, Bolyai Szemle 2010. XIX. évf. 3. szám pp. 115-126., ISSN 1416-1443)

### **9. Pap Andrea**

A költségvetési szervek gazdálkodásának elméleti aspektusai II. (Budapest, Bolyai Szemle 2010. XIX. évf. 3. szám pp. 127-137., ISSN 1416-1443)

## ACADEMIC CV

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Nationality	Hungarian
Place and date of birth	Szeghalom (Hungary), 06.October, 1976
Sex	female
<b>Professional experience</b>	
Period	2004 – to present
Profession/job title	senior lecturer
Main activities and tasks	teaching: Catering, Marketing, Finance I-III., Specialized Technical Knowledge, Methods of Materials and Production Technology, Business Economics Research: The analysis of the economic management of budgetary institutions, Participation in the organisation and execution of the FOURLOG multinational military exercises
Name and address of employer	National University of Public Service, Faculty of Military Science and Officer Training; Institute of Military Logistics; Department of Military Supply and Transport
Type of activity	Higher education
Period	2002 - 2004
Profession/job title	assistant lecturer
Main activities and tasks	teaching: Catering, Marketing, Finance I-III., Specialized Technical Knowledge, Methods of Materials and Production Technology, Business Economics, Strategic Management, Stock Market Knowledge Participation in the organisation and execution of the FOURLOG multinational military exercises
Name and address of employer	Miklós Zrínyi National Defence University, Faculty of Leadership and Organisation, Department of Military Supply and Finance
Type of activity	higher education
Period	2001 - 2002
Profession/job title	supply officer

Main activities and tasks	Keeping the records of the central budget of the human resource and mapping services. The daily recording and coordination of estimates, writing reports, preparing commitments, contracting.
Name and address of employer	Hungarian Defence Forces, Military Supply Centre, Budapest
Type of activity	National defence
Period	1999 - 2001
Profession/job title	Chief of Catering Branch
Main activities and tasks	Providing food supplies for the unit
Name and address of employer	HDF 93. Vitéz Háy László Mixed Aircraft Wing, Tököl
Type of activity	National defence
<b>Education</b>	
Period	2004 - 2006
Qualification	economist specializing in company financing and accounting
Name and type of institution of education	University of Pécs, Faculty of Economics
Period	1999 - 2001
Qualification	economist specializing in marketing
Name and type of institution of education	University of Pécs, Faculty of Economics
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Qualification	finance economist, catering branch, budget specialization
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Other qualifications	Chartered accountant, HACCP system administrator