Modernization of Macroeconomic Forecasting as a Basis for Efficient Budgeting in Ukraine

Kiev – 2008

MODERNIZATION OF MACROECONOMIC FORECASTING AS A BASIS FOR EFFICIENT BUDGETING IN UKRAINE

Juraj Renčko, Ph.D
Doc. RNDr. Viliam Páleník, Ph.D.

Chief Editor / Project Manager
Robert S. Bodo

ISBN number: 978-966-8274-15-2

USAID FROM THE AMERICAN PEOPLE | MUNICIPAL BUDGET REFORM

MODERNIZATION OF MACROECONOMIC FORECASTING AS A BASIS FOR EFFICIENT BUDGETING IN UKRAINE

USAID Contract / Task Order Number EPP-I-01-04-00037-00
RTI Project Number 0209358.001
September 30, 2008

Prepared for
Office of Economic Growth, Ukraine Mission
United States Agency for International Development

Prepared by:

Robert S. Bodo
RTI International1
3040 Cornwallis Road
Post Office Box 12194
Research Triangle Park, NC 27709-2194

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Chief Editor / Project Manager:
Robert S. Bodo

Publishing Coordinator / Editor:
Vira Illiash

English Copy Editing & Proofreading:
James Hydzik

Authors:
Juraj Renčko, Ph.D
Doc. RNDr. Viliam Páleník, Ph.D.

Co-authors (in alphabetical order):
Ing. Tomáš Domonkoš
Ing. Vladimír Kvetan
Ing. Martin Mlýnek
Mgr. Lucia Pániková
Ing. Marek Radvanský

TABLE OF CONTENTS

Modernization of Macroeconomic Forecasting as a Basis for Efficient Budgeting in Ukraine

Section 1

Abbreviations **5**
Preface **7**
Special Thanks **10**
Introduction **11**
Short Resume of the Authors **11**
Slovakia's Reform Path – Lessons That Can Be Learned **12**
Contemporary Approaches to Public Expenditures Management **15**

1. Modern Public Finance Management **15**
1.1 Key Reasons of Public Finance Management Reforms in OECD Countries 15
1.2 Basic Objectives of PEMR 16
1.2.1 Aggregate Fiscal Discipline 16
1.2.2 Allocation Efficiency 17

1.3 Top – Down Budgeting 17
1.3.1 Methodological dimension 18
1.3.2 Institutional dimension 19

ANNEX I: Baseline Methodology – Brief Overview **20**

ANNEX II: Fiscal Impact Assessments – Brief Overview **21**

Public Finance Management Reform in Slovakia – Mistakes, Achievements and Lessons to be Learned **22**

2. Macroeconomic Framework of Fiscal Policy **25**
3. Budget Preparation **25**
3.1 Program Budgeting 26
3.2 Multi-Annual Budget 26
3.3 Budget Process Legislation 26
3.4 Organizational Aspect of Budget Process 26

4. Fiscal Decentralization **28**
5. Budget Execution and Debt and Liquidity Management – State Treasury System **28**
6. Accounting and Reporting **30**
7. Contingent Liabilities and Hidden Debt **31**
8. System and IT Support of the Reform **32**
9. Educational Activities **32**

Conclusion 33

Additional Recommendation 35

Modernization of the Strategic Planning and Macroeconomic Forecasting System as a Basis for Efficient Budgeting in Ukraine 36

10. Linkage between Strategic Planning, Prioritization and Budget **37**
11. Multi – Year Budgeting **40**
11.1 Medium – Term Macroeconomic and Macro-fiscal Framework 40
11.2 Medium – Term Budget Framework 44

Annex I **45**

Annex II: Possible Content of a Pre-Budget Document **46**

Section 2

Introduction 48

1. EU Budget and the Use of Macroeconomic Modelling **48**
1.1. The Preparation of the EU Budget in Brief 48
1.2. The Financial Framework of the EU 48

1.3. The EU Annual Budget 50
1.3.1. The Structure of the EU Budget 50
1.3.2. The Budget Procedure 54
1.3.3. Budget Management and Supervision 55

1.4. Prognoses Used During Budget Preparation 55

2. Effectiveness of Monetary Policy under the Conditions of a Transitive and Acceding Economy (the Case of the Slovak Republic) ... 59
2.1. Model of a Small and Open Economy ... 60
2.2. Model for the First Period (1993 – 1995) ... 62
2.3. Model for the Second Period (1996 – 1998) ... 63
2.4. Model for the Third Period (1999 – 2002) ... 64
2.5. Analyses of Monetary Policy Effectiveness ... 66

3. Aging, Health Status and Determination of Health Expenditure (Long Term Model) ... 71
3.1. Methodology ... 71
3.1.1. Health Care Expenditure Models in Slovakia ... 71
3.1.2. Data Source for Model ... 72
3.1.3. Basic Assumptions of the Forecast ... 73

3.2. Main Results ... 73
3.2.1. Demographic Variables ... 73
3.2.2. Labor Market Variables ... 74
3.2.3. Economic Variables ... 74
3.2.4. Results of Projection ... 75
3.2.5. Sensitivity Tests and Scenarios ... 76
3.2.6. Migration ... 76

3.3. Policy recommendation ... 78

4. Simulations of Price and Supply Shock on the Economy with the CGE Model ... 80
4.1. CGE Model ... 80
4.1.1. Model Structure ... 80

4.2. Supply and Price Disturbances ... 82
4.2.1. Price and Supply Disturbance ... 82

4.3. Model Simulation and Results ... 83
4.3.1. Scenario A ... 83
4.3.2. Scenario B ... 83
4.3.3. Scenario C ... 83
4.3.4. Scenario D ... 83

5. Mundell – Fleming Model for Ukraine ... 87
5.1. Model Description ... 87
5.1.1. Capital Market ... 87
5.1.2. Money Market ... 88
5.1.3. IS – LM Model ... 89
5.2. Data ... 89
5.3. Monetary and Fiscal Policy ... 90
5.4. External Trade ... 92
5.5. Qualitative and Quantitative Analysis ... 93

Conclusion ... 97

ABBREVIATIONS

ACOR	Advisory Committee on Own Resources
AHEAD	Aging, Health Status and Determinants of Health Expenditure
ARDaL	Debt and Liquidity Management Agency
AUC	Association of Ukrainian Cities
BIS	Budgetary Information System
CA	Commitment Appropriations
CABMIN	Cabinet of Ministers
CD	Cobb – Douglas Production Function
CE	Council of Europe
CES	Constant Elasticity of Substitution
CGE	Computable General Equilibrium Model
DG ECFIN	Directorate General for Economic and Financial Affairs
DG AGRI	Directorate General for Agriculture
EAGGF	European Agricultural Guidance and Guarantee Fund
EC	European Commission
ECM	Econometric Error – Correction Model
EESC	European Economic and Social Committee
EP	European Parliament
ESA 95	European System of Accounting
EU	European Union
EURO, EUR	Currency of the EU zone (16 countries as of January 1, 2009)
EX	Export
FIA	Fiscal Impact Assessment
FD	Foreign Demand

FDI	Foreign Direct Investment
FPI	Financial Policy Institute
G	Government Expenditure
GDP	Growth Domestic Product
IBSER	Institute for Budgetary and Socio-Economic Research
IM	Import
IMF	International Monetary Fund
IPSAS	International Public Standards Accounting System
IS – LM	Investments and Savings – Liquidity and Money Model
IT	Information Technology
KGE	Keynesian General Equilibrium Model
L	Leontieff Production Function
LE	Life Expectancy
M2	Money Supply
MBR	Municipal Budget Reform Project
MF	Mundell – Fleming Model
MoF	Ministry of Finance
MoE	Ministry of Economy
NATO	North Atlantic Treaty Organization
NBS	National Bank of Slovakia
NBU	National Bank of Ukraine
OECD	Organization for Economic Cooperation and Development
OLAF	EU Anti-Fraud Office
OLS	Basic Economic Method for Verification of Model's Parameters
PA	Payment Appropriations
PDB	Preliminary Draft Budget
PEMR	Public Expenditures Management Reform
PFMR	Public Finance Management Reform
PHARE	EU Fund for Central and Eastern Europe
PPB	Performance Program Budgeting
PPP	Private Public Partnership
RTI	Research Triangle Institute International
SAM	Social Accounting Model
SGP	Stability and Growth Pact
SKK	Slovak Crown (legitimate currency until December 31, 2008)
SlovakAid	Slovak Agency for International Development
STS	State Treasury System
SWOT	Strength – Weakness – Opportunity – Threat Analysis
TACIS	Technical Aid to the Commonwealth of Independent States
TFR	Total Fertility Rate
TOR	Traditional Own Resources
UK	United Kingdom
USAID	US Agency for International Development
VAT	Value Added Tax
VR	Verkhovna Rada (Ukrainian Parliament)
VUC	Higher Regional Self-Government Units in Slovakia
WB	World Bank
Y	Output

PREFACE

It is the policy of the United States Department of State to focus on supporting European countries such as Slovakia, which have recently became members of OECD, NATO, and EU, as they assist their neighbors like Ukraine to join the club of democratic, prosperous, and free nations.

Ukraine is a country with a great potential to become a modern European nation where its citizens and local self-governments would not depend so much on the central government and would break loose from international isolation. For this reason, RTI and its partners in Slovakia and Ukraine organized a set of activities that involved the exchange of experts, information and experiences between government and non-governmental partners in both countries. The benefits of these activities stem from the Slovak experience where strong and pragmatic territorial self-government became a guarantor of democracy and an important partner of the national government, while decentralization brought a more effective use of local financial resources as well as a better allocation of public finances in the long-term. From the socio-economic point of view, Slovakia successfully transferred its model which significantly improved the country's competitiveness and increased employment, foreign investment and the wealth of its citizens.

From the mid to late 1990s, RTI managed a capacity and institution-building project in Slovakia. I had the opportunity to manage the Public Administration and Fiscal Decentralization component of the Local Self-Government Assistance project in Slovakia in the period of 1996-99. RTI's main task was to provide technical assistance to the Slovak parliament and government and to the municipal associations of elected and professional leaders in the country's path toward democracy and fiscal decentralization. This experience laid the foundation for the development of further exchanges between Slovakia and Ukraine, which ultimately resulted in RTI and USAID receiving the prestigious recognition of the Slovak Prime Minister Mikuláš Dzurinda. In his letter to Ukraine's Prime Minister Yuri I. Yekhanurov, Prime Minister Dzurinda supported Slovak-Ukrainian cooperation in Ukraine's reform progression.

In the Municipal Budget Reform Project's first stage, the Slovak Government Agency for International Development – SlovakAid – leveraged the funding of this USAID project and organized a study tour to Slovakia (August 19-30, 2006). The Ukrainian delegation included representatives of the Presidential Secretariat, Verkhovna Rada, high officials from the Cabinet of Ministers, Ministries of Economy, Labor and Social Policy, city mayors, executive managers of MBR and the Association of Ukrainian Cities. The main objective of the visit was to acquaint Ukrainian representatives of local self-government and public administrations with how territorial and administrative reforms as well as reforms related to the educational, social and healthcare systems of Slovakia were prepared and realized. The lectures and discussions were conducted by the Slovak experts responsible for the successful preparation and implementation of reforms in Slovakia.

The second stage of the jointly funded SlovakAid-USAID activity took place in Ukraine in October 2006 and was followed by a series of seminars and conferences focused on various aspects of public administration reform and fiscal decentralization, as well as the observation of territorial divisions and distribution of competencies among all sector agencies undergoing democratic transition.

The discussion forums included topics of reform which built a foundation for successful decentralization, such as: tax reform, fiscal reform, healthcare reform, social reform. These forums were conducted by the authors and managers of reforms in Slovakia and were attended by Ukrainian representatives of the central government, local self-government, non-governmental organizations, political parties, and academics. The Slovak experts also helped their Ukrainian partners to prepare background documents for discussion forums on decentralization in Ukraine using Slovak and international experience and their recommendations towards its successful realization. Their main task focused on financing territorial self-governments at various levels (municipality, district, oblast) in order to enable them to function independently in the areas under their competency.

The main result of the study tour to Slovakia and the conferences and seminars in Ukraine was the creation of a database of supportive documents as well as the expression of opinions and recommendations for addressing individual segments of the complex reform of public administration; mainly in the area of fiscal decentralization. A lobby group in the Parliament (Verkhovna Rada), the "CAUCUS" on Local Self-Government was created through this project support of non-governmental structures. MBR provided and supported its project partner, Association of Ukrainian Cities (AUC), which has been engaged in drafting laws related to local self-government and has participated in the elaboration of budgetary rules of public administration, with arguments in favor of fiscal decentralization and stronger self-government in their further communications with the central government and Verkhovna Rada. The details on the early study tour to Slovakia are available on the MBR website: http://www.mbr-ukr.org/images/stories/SlovaAid%20Report_final.pdf

The above described activity served mainly to start reforms in Ukraine by assuring their quality preparation. After the successful launch of the transition process, the institutional and managerial capacity could be expanded by implementing budget and fiscal reforms at the central government level.

The MBR project also supported the creation of a platform for cooperation among foreign donors (USAID, SlovakAid, CIDA, EU member states, etc.) that are working towards the successful democratization of Ukraine.

The successful experience of the Ukrainian decision makers in their study tour to Slovakia, organized by MBR and MESA 10 and funded by SlovakAid, helped the MBR project to coordinate another successful study tour to Great Britain and Slovakia. Studying the experiences of EU countries in their development of medium term fiscal and budget strategies based on macroeconomic forecasting was the purpose of a two week study tour in November 2006 to Great Britain and Slovakia. The report covering the activities at the National Level, including the Study Tours in the Slovak Republic and Great Britain is available on the MBR website http://www.mbr-ukr.org/images/stories/national_level/ppb_nationallevel-final.doc

The MBR project along with the Slovak Advisor on International Medium-Term Budgeting, Dr. Juraj Renčko, organized a seminar and a study tour focused on developing a macroeconomic framework to plan for medium-term Performance Program Budgeting (PPB). The seminar and study tour program were organized for Ukrainian finance officers from the Ministry of Finance, the Ministry of Economy, and the Secretariat of the Budget Committee of the Verkhovna Rada.

In a seminar titled "The Way to Modern Budgeting in EU Countries—A Challenge of the 3rd Millennium", Dr. Juraj Renčko presented the key concepts of EU countries' experience in developing a medium-term fiscal and budget strategy based on macroeconomic forecasts. His presentation included a description of the characteristics of the major EU normative and legal documents for regulating fiscal stability of the EU member states. Dr. Renčko also provided examples of European reforms achieved in public administration using results-oriented Performance Program Budgeting as the chief budgeting method.

Nineteen Ukrainian experts participated in the study tour: five from the Ministry of Finance, five from the Ministry of Economy, and two from the Secretariat of the Budget Committee of the Verkhovna Rada, as well as five experts from the MBR Project. The delegation was led by Mr. Anatoliy A. Maksuita, the First Deputy Minister of Economy of Ukraine and a key supporter of the project.

The major meetings in Great Britain took place at the National School of Government, Her Majesty's Treasury, and the Oxford Center for Economic Forecasting, while in Slovakia the delegation met with officials from the Ministry of Finance, Agency for Liquidity and Debt Management and the State Treasury.

The study tour participants also enjoyed the opportunity to hear presentations by some of the leading fiscal policy and budget experts in Britain and Slovakia. In particular, Mr. David Pickup, Director General of Her Majesty's Revenue and Customs Department gave a presentation on Britain's tax system, while Dušan Jurčák, Director of the State Treasury of Slovakia, presented the Slovak Treasury System. Following the meetings, in both Great Britain and Slovakia, the Ukrainian officials and their hosts expressed real interest in exchanging experiences, discussing issues of common concern and establishing business relations.

The study tour participants examined a similar spectrum of issues in both Great Britain and Slovakia, which facilitated the comparison of information with regards to: preconditions for the implementation of reforms in both countries; the specific features of their political systems; the interaction between the government, executive bodies and parliament during the budget development process; the specifics of Program Performance Budgeting as well as measuring program effectiveness, and the application of macroeconomic forecasting models.

Upon completion of the study tour, the participants agreed to prepare a draft concept for modernizing Ukraine's macroeconomic forecasting and budgeting system based upon the information and knowledge obtained during the study tour.

Members of the Ukrainian delegation drew lessons from two countries with different systems of administrative and territorial division as well as historical and economic preconditions that contributed to the establishment of their finance systems. This enabled the Ukrainian decision makers and experts to familiarize themselves with different models of medium-term budget development based on Program Performance Budgeting, along with the practice of applying econometric models used to forecast socio-economic development in these countries. As it is going through a similar stage in the development and implementation of budgeting methodologies, and having all the premises well in place to adopt advanced methodologies, this experience can be truly beneficial to Ukraine.

The cooperation between the Ministry of Finance of the Slovak Republic and the Ministry of Finance of Ukraine matured to the level which could be easily qualified for the "Twinning" activities of these two neighboring institutions.

The Slovak advisors on strategic planning, macroeconomic forecasting and modeling Drs. Juraj Renčko and Viliam Páleník developed strategic budget policy directions linked to medium-term macroeconomic forecasting for the Ministries of Finance and Economy of Ukraine. While Dr. Renčko developed a Concept on "Modernizing the System of Strategic Planning and Macroeconomic Forecasting as a Basis for Effective Budgeting in Ukraine", Dr. Viliam Páleník assessed the current situation regarding macroeconomic modeling. Based on the complex and detailed analysis of the analytical instruments used by the Ministry of Finance of Ukraine, Dr. Páleník prepared a report which includes an evaluation of the existing model and provides concrete proposals for the development of a new model, including a description of the necessary data and measures.

Drs. Renčko and Páleník facilitated discussions on strategic budgeting at all levels of public administration (central and local) to ensure that MBR recommendations and proposals were consistent with the strategies included in the document titled, "Developing the Local Development Strategies with Due Account of Budget Constraints" which was prepared by the experts from the Ministry of Finance of Ukraine.

As a result of the Slovak-Ukrainian cooperation, the representatives of the Ministry of Finance of Ukraine and the Ministry of Economy of Ukraine have been acquainted with how to:

a) Coordinate the activities of various government bodies in the development and implementation of economic policy and budgeting in Ukraine based on international experience;
b) Develop a methodology for determining the effectiveness of monetary policy in Ukraine based on the Keynesian General Equilibrium Model (using Slovak experience);
c) Model the impact of exogenous price and supply shocks on Ukraine's economy using the Computable General Equilibrium Model (CGE);
d) Develop a methodology for the long-term forecasting of health expenditures based on demographic forecasts (using Slovak experience).

In my capacity as the MBR Chief of Party, I met with representatives of the European Commission – Mr. Ioannis Filopoulos and Mr. Samim Cilem along with the Director of Institute for Budgetary and Socio-Economic Research (IBSER) Iryna Shcherbyna. During the meeting organized by the Ministry of Finance of Ukraine, which took place on August 30, 2007, the European Commission representatives presented a proposal for the new "Twinning" project between the selected EU country and Ukraine. The experience of the Slovak-Ukrainian exchange of experts, information, experiences was inspirational for the EC representatives. At the end of the project, Drs. Renčko and Páleník briefed the USAID Head of the Office of Economic Growth, Sarah Wines, on the results of the macroeconomic task.

The First Deputy Minister of Finance, Anatoly I. Myarkovsky, expressed his appreciation to the Slovak advisors Dr. Renčko and Dr. Páleník for their joint effort in the improvement of the strategic planning and macroeconomic modeling used by the Ministry of Finance of Ukraine. A copy of the letter is placed on the MBR website: http://www.mbr-ukr.org/images/stories/letter_from_mfu1.pdf .

Special thanks go to the State Secretary of the Ministry of Finance of the Slovak Republic, František Palko, who arranged and supported the Slovak-Ukrainian Twinning project, including the study tour to Bratislava. A copy of the letter from Mr. Palko is available on the MBR website: http://www.mbr-ukr.org/images/stories/other/Letter.pdf .

As a result of the MBR project, the US-Slovak-Ukrainian team of experts succeeded in preparing a legal framework for Performance Program Budgeting based on mid-term planning and the EU standards in the macroeconomic area. The MBR project contributed to the development of the key legal document – The Resolution of Cabinet of Ministers on "Approval of Declaration on Goals and Tasks of Budget for 2009" which was announced on March 5 (# 160). According to this document, signed by Prime Minister of Ukraine Yulia V. Tymoshenko, "The Declaration of Goals and Tasks of the 2009 Budget is based on the provisions of the Government Action Program "Ukrainian Breakthrough: for People, but not for Politicians" (n0001120-08) and is "aimed at the creation of a favorable macroeconomic environment, implementation of a consistent and effective tax and budgeting policy, ensuring tough financial discipline, and formulation of a 2009 budget based on the principles of mid-term budget planning with clear fiscal and expenditure indicators." The Declaration contains regulations regarding the implementation of mid-term budgeting in Ukraine starting from 2009 and conducting experiments on PPB implementation on the local level.

I am glad to present, to all those who are interested, the results of this three-year effort in modernizing the system of macroeconomic forecasting, modeling, and strategic planning as a basis of efficient budgeting in Ukraine. The Municipal Budget Reform project has been funded by USAID and implemented by Research Triangle Institute International in the course of which a great deal of valuable material was created to assist the beneficiaries (local and national governments). For further reading, the archive is available on the MBR website http://www.mbr-ukr.org/

USAID Contractor
Robert S. Bodo
Chief of Party
Municipal Budget Reform Project
Research Triangle Institute International
September 30, 2008

SPECIAL THANKS

Authors of this book would like to thank to the Municipal Budget Reform Chief of Party Robert S. Bodo for managing the Research Triangle Institute International (RTI) project, to USAID for financing the MBR, and to RTI for implementing this project in Ukraine. Great acknowledgement is given to all of the experts responsible for the macroeconomic tasks of the MBR project, whose help enhanced its aims, Director of Institute for Budgetary and Socio-Economic Research Iryna Shcherbyna and her colleagues Tereziya Babich, Yevhen Cherevykov, Olena Stetsenko, and Serhiy Maksiuta.

Sincere appreciation goes to the US Budget Advisor of the MBR project and the former public finance expert of the US Treasury David Darby who worked hand-in-hand with the authors and Ukrainian legislators from the Verkhovna Rada and Cabinet of Ministers of Ukraine on strengthening the legal framework for Performance Program Budgeting at the National Level, and to Deputy Chief of Party of the MBR project Eric Bergthold for organizing the two-week study tour to Great Britain and Slovakia. The First Deputy Minister of Economy in Ukraine, Anatoly A. Maksiuta, without whose guidance, professionalism, and support the project would not be successfully realized, chaired the National Advisory Board for the MBR project. Andriy Nesterenko, Bill Schlansker, and Sarah Wines of USAID Ukraine provided valuable support to this complex and useful project. Last but not least, the special thanks goes to Viktor Nižňanský, Ph.D, who along with Robert S. Bodo created, arranged, built, and supported a successful framework of donors, implementers, NGOs, advisors, experts, and practitioners for the US-Slovak-Ukrainian activities under the USAID and/or SlovakAid funded projects.

INTRODUCTION

This publication was created under the motivation of the successful completion of the Municipal Budget Reform (known as MBR) project implemented in Ukraine. The MBR project started on February 15, 2005 and ended on September 30, 2008 and was funded by the United States Agency for International Development. Within its duration, experts from the RTI agency helped to develop a concept of increasing the efficiency of budgetary policy on the basis of macroeconomic forecasting, strategic planning, and economic modelling. A correct understanding and use of the connection between modelling and forecasting in the process of strategic planning and budgeting is an important attribute of successful economic policy for any state.

The book consists of two major sections related to the modernization of the macroeconomic system in Ukraine. The first block, focusing on Strategic Planning and Efficient Budgeting, is written by Juraj Renčko Ph.D, and the second block, focusing on Macroeconomic Modeling, is written by Doc. RNDr. Viliam Páleník, Ph.D.

SHORT RESUME OF THE AUTHORS

Juraj Renčko Ph.D, (rencko@ecofin.sk) has been an adviser to the Deputy Prime Minister and Minister of Finance of the Slovak Republic, advising on public finance management reform in Slovakia. In 1999 – 2002 he was head of the Coordination Unit for Bank and Enterprise Sector Restructuring and Privatization. From this position, he closely participated in the design of the reform package in this area and was directly responsible for implementing the reform. Among others, he organized the restructuring and privatization process of the two largest Slovak banks, led a working team drafting a broad amendment of bankruptcy legislation and as a member of the Supervisory Board and later the Board of Directors of Slovenska konsolidacna (Slovak Consolidation Agency), a special vehicle established by the Slovak Government, was also involved into bad debt resolution in Slovakia. Dr. Renčko has an academic background; as a senior scientific fellow of the Institute for Forecasting of the Slovak Academy of Sciences since 1990, he worked for several years on macroeconomic analyses and forecasts of the Slovak economy, as well as on the design of economic policy during transition. In 1999, he led a working team for drafting the Medium-term Priorities of the Economic Policy of the SR, a joint document of the Slovak Government and the EC, and led a team for Slovakia–EC negotiations on Economic and Monetary Union issues.

Doc. RNDr. Viliam Páleník, Ph.D, (viliam.palenik@iz.sk) has been the President of the Employment Institute and the key member of the Institute of Economic Research at the Slovak Academy of Sciences. Dr. Páleník represents Slovakia in EU at the European Economic and Social Committee. He is an expert in the following areas:

- Theoretical and Methodological Problems of Computable General Equilibrium Models CGE;
- Macroeconomic modeling in the view of theoretical hypothesis verification (case of SR);
- Globalization, integration and accomplishment of transformation – determining routes of economic development in Slovakia and creation of economic assumptions for the modernization of Slovak society;
- Ex-ante evaluation of the national strategic reference framework of the Slovak Republic 2007 – 2013
  PROJECT OF THE MINISTRY OF CONSTRUCTION AND REGIONAL DEVELOPMENT;
- AHEAD – Ageing, Health Status and Determinants of Health Expenditure;
- From policy takers to policy makers – Adapting the EU Cohesion Policy to the Needs of the New Member States;
- Economic and social context of Slovakia's Integration into the EU.
  GOVERNMENT PROJECT;
- Quality of Economic Growth as a Target Function of Economic and Social Policy in the Process of Preparation and First Years after EMU Accession.
  PROJECT SGA;
- Possibilities and Constraints of Modelling of Economical Development in the Slovak Republic as a Possible Approach of Theoretical Hypothesis Verification.
  PROJECT SGA;

- Analytical paraphrase of transitive economy behaviour (case of the Slovak Republic);
- Modelling of Economic Development of the Slovak Republic;
- Macroeconomic Modelling of the Slovak Republic, Use of Alternative Steps of Economic Policy Simulation;
- Mid-term projection of trends in the macroeconomic development of the Slovak health sector.

SLOVAKIA'S REFORM PATH – LESSONS THAT CAN BE LEARNED

Since 1989, after the Velvet Revolution, Slovakia has come a long way from a command economy and totalitarian regime to a standard democratic country with a market based economy. This way, however, was not straightforward.

Slovakia started the transition process as a part of the country of Czechoslovakia. Political development after the socialist regime's collapse led to the peaceful split of the country in 1992 and on January 1, 1993 a new Slovak Republic was created. The image of the new country was, however, not the best one as the regime that took power in 1992 was considered to be the sole initiator of Czechoslovakia's disintegration by the international community. In addition, the authoritarian and isolationistic nature of this regime demonstrated a lack of desire to build up real democracy and made the country's isolation even deeper.

A lot of mistakes were also made in economic policy. Probably the most serious one was a wrong macroeconomic policy, which did not take into consideration the low level of the enterprise sector's preparedness to face the pressure of the competitive market then emerging. The government's expansionary fiscal policy generated a current account deficit of higher than 10 per cent and the economy was unable to finance such a high deficit any more.

The second mistake lay in the continuous deterioration of bank assets and rising general insolvency in the economy. This growing problem was not reflected in any government measure. Bank assets deteriorated for several reasons starting with weak internal procedures in banks, and through a lack of properly functioning bankruptcy legislation.

Privatization in particular was a key factor in the slow microeconomic adjustment. In general, the main purpose of privatization, as it was commonly understood at the beginning of the transformation process in 1990, was to bring new markets, new capital and managerial know-how to undercapitalized and wrongly managed state owned companies, as well as their split into more competitive units. Unfortunately, privatization methods used in Czechoslovakia, and the same was valid later for Slovakia, did not fulfil these objectives. Neither voucher privatization as was applied in former Czechoslovakia, nor privatization through direct sales to politically selected new owners brought new markets, new management or fresh capital.

By the end of 1998, Slovakia faced a deep crisis, which was the outcome of wrong structural and macroeconomic policy during the whole period after 1993. In parallel, on the international political scene, Slovakia was an international pariah known for its undemocratic policies and mismanaged economy. Due to the undemocratic regime alone Slovakia was not invited to start negotiations about NATO, OECD or EU membership, while its neighbors – the Czech Republic, Hungary and Poland – had at the least already begun talks on accession.

In a span of five years, however, Slovakia underwent a profound transformation. By May 2004, Slovakia had become a member of the European Union (EU), with a high growth rate and a flat tax regime that is the envy of its neighbors. It also proved a magnet for investors helping Slovakia to attract high volumes of foreign direct investment (FDI), including green-field projects. While the rapid inflow of FDI is perhaps the best indication of the improvements in the country's investment climate, positive changes have also been noted in evaluations by domestic experts, in market surveys carried out by the Slovak business community, in commentaries abroad and at the end of the day by one of

the flagship World Bank publications, Doing Business 2005. That report, which analyzes the investment climate and compares indicators across 180 countries, ranks Slovakia as the top reformer on a global basis. The World Bank report points to the number, extent, and depth of the difficult and politically controversial reforms that took place in the country during a relatively short period of time, putting Slovakia in the top 20 countries worldwide in terms of favourable investment climate.

Nevertheless, the delay in Slovakia's integration ambitions was significant. Comparisons with its neighbors who are members of the Visegrad Four (V4) group of countries are undoubtedly relevant. The following table provides information about the dates when the V4 countries became members of the three key international communities: NATO (North Atlantic Treaty Organization), OECD (Organization for Economic Cooperation and Development) and EU (European Union):

	OECD	NATO	EU
Czech Republic	Dec. 21, 1995	March 12, 1999	**May 1, 2004**
Poland	Nov. 22, 1996	March 12, 1999	**May 1, 2004**
Hungary	May 7, 1996	March 12, 1999	**May 1, 2004**
Slovakia	Dec. 14, 2000	March 29, 2004	**May 1, 2004**

The speed of Slovakia's integration, however, is still high, and is higher than the speed of its peer countries. Though all V4 countries became members of the Shengen Zone, the area of free movement of persons covering the whole continental part of the European Union on December 22, 2007, on January 1, 2009 Slovakia will become only the second new central and east Europe EU member state, after Slovenia, to adopt the EURO.

Shengen Zone membership is purely a question of the technical preparedness to control the external borders of the EU. Adoption of the EURO is, on the other hand, about the ability of the Slovak economy to successfully face a range of difficulties connected with EUR adoption, mainly in finding a sustainable way to follow the Stability and Growth Pact criteria.

In 1998, nobody in the international community believed that Slovakia would be able to address its own problems and to formulate adequate solutions, much less implement them in practice. Many other countries failed precisely in the last step – in implementation. Why was Slovakia so successful in its reform path? What was Slovakia's key to success? What lessons can also be learned by other countries aspiring to become EU members?

In principle, technical solutions to many of today's reform needs have already been developed and are available in literature. Designing a solution is also accessible through a number of bilateral and multilateral donor agencies. Therefore, the question is not what to do, but how to do it. Slovakia's experience can inspire "new reform runners".

What were the key elements of reform success?

Firstly**, reform momentum must be present**. Reform momentum means that there is a perception inside a society about the necessity and inevitability of change. Reform momentum usually appears due to concrete circumstances. The integration ambitions of a country are a good basis for building reform momentum. This was the case of Slovakia, when the prevailing part of the population was traumatized by the government policy during 1993 – 1998 that led to the exclusion of Slovakia from the group of countries which were invited to negotiate EU accession. In parallel, as described above, Slovakia faced very significant economic problems and the fact that the government's economic policy was unsustainable was more and more obvious not only to experts but also to the general public.

Later, mainly after elections in 2002, the date of the EU accession, which was originally set for January 1, 2004, built an additional reform momentum. The timely adoption of *acqui communitaire* provoked an additional effort by the whole state administration.

Secondly, **political courage and strong political leadership** is absolutely necessary. Reforms must have their own "face". Policymakers often worry about associating themselves very tightly with

unpopular measures (and reforms can be painful) and, when reforms became difficult, they would "lie in the air" and suddenly nobody would be willing to claim responsibility. In Slovakia's case, it was Deputy Prime Minister Ivan Mikloš who became such a face, but fortunately, the whole ruling coalition was "reform-minded". *A critical mass of reformers was present.* The Deputy Prime Minister, however, was courageous enough to publicly defend reforms even when public reluctance was significant.

Next, **properly addressing the problems** a country is facing is a key precondition for successful reform. The difficulties transition countries dealt with were quite complex. If a government's analyses were inadequate, revealing only the first planned consequences but not the real causes of problems, then the solutions were simple but did not actually resolve the issue. It resulted in a failure to eliminate obstacles and loss of the initial reform momentum. The problems encountered by Slovakian banks (described above) can be used as an example. Between 1993 and 1998 the Slovak government adopted several decrees trying to address dilemmas in the banking sector. There was a lack of understanding of the complexity of the issue, of the linkage between enterprises and banking sector problems and many, many other dependencies (bankruptcy legislation, bank regulation, tax regime, etc). The decisions adopted were never fulfilled due to a very simple reason – they did not match the real problem and their accomplishment was simply impossible.The consequences were tremendous – between 1994 and 1999 the cost of bank restructuring increased ten times and constituted 12 per cent of GDP 2000.

Utilization of international best practice is the next important precondition for successful reforms. As already mentioned the technical aspects of the necessary reforms have already been developed in the world and are accessible in literature and through international donor organizations, which have enough experience with implementing reforms all over the world. Through their experts this expertise can be delivered to any country. However, the absence of local capacity able to adopt expert advice and to apply this advice under local conditions often reduces the effectiveness of the recommendations given. In other words, the work of international donors must be demand driven, not supply driven.

After the elections in 1998, **a specialized team of experts was established** in Slovakia just to address the above mentioned weakness – the lack of local administrative capacity. The responsibilities of this team were twofold: firstly, together with international donors, among which the World Bank team played a leading role, **to design** reforms, and secondly, on a day by day basis **to implement** reforms. This team was not a part of the standard state administration, but stood aside from it, with competence to move vertically, as well as horizontally, across the state administration, This meant that it was entitled to communicate directly with top level policy makers and at the same time with lower level officials to explain misunderstandings and to deliver tasks without delays. This group of local experts understanding Slovak conditions partially substituted for the lack of local administrative capacity during the late 1990s, but also contributed to the rapid building up of capacity inside the state administration. This structure was much more flexible than the standard vertical organization of the state administration, but was also more flexible than any horizontal working groups composed of state officers. Finally, the high speed of the reforms' design and implementation proved the successfulness of this approach in Slovakia.

Sequencing is also one of key preconditions for successful reforms, and can be understood in two ways:

- Whether it is better to launch easy reforms first, or those that are most difficult,
- Which reforms should precede others.

The Slovak experience proves that difficult and painful reforms should be launched as soon as possible after elections, preferably during the first year when the new government is in power; the courage and motivation of policy makers tends to drop afterward. All successfully implemented reforms after 1998 in Slovakia were launched according this rule (bank sector restructuring, tax reform, pensions' reform and others). And we can see that those which were prepared later, such as the reform of the education system, failed during the approval process, mainly due to the politicians' loss of willingness to adopt difficult decisions as the next parliamentary elections loomed. An important message follows from this experience – reformers should have pre-designed reforms before they take power. Starting an analysis and design only after that causes a loss of time and also threatens the reform momentum.

As for time sequencing according to areas of reforms, three consequent phases can be identified.

The first one is related to **functional real economy**. The main task of reforms in this area is to build-up a competitive market based economy. Its basic components are usually as follows: privatization; resolution of mutual indebtedness and insolvency in the economy, which has appeared in all transition economies; financial market restructuring; building of a bankruptcy system; the cancellation of subsidies, cross–subsidies, state guaranties and other practices distorting the competitive environment; and building a flexible labor market. Measures forming a business environment friendly to investments and entrepreneurship in general also belong to this area of reforms,

Based on the functional real economy, the next phase of reforms can be launched. This phase covers the area of **public services and public finance** in general and it comprises mainly reforms of pensions, taxes, health care and public finance management including fiscal decentralization and other related areas.

While the first reform phase fully covers the transition agenda, the second phase covers it only partially, because a number of these reforms are relevant even for many developed countries, and they focus mainly on those reforms which need to address the problem of an aging population and increasing market flexibility, and mainly the flexibility of the labor market. One of these reforms, however, still belongs to the transition agenda – in particular public finance management reform. This reform is even more urgent for countries intending to become a European Union member, because all new members automatically become members of the Economic and Monetary Union (until EURO adoption, as members with derogation), which means that the Stability and Growth Pact is applied to them and that new member states are also obliged to prove the sustainability of their fiscal stance.

The third reform phase addresses **third millennium challenges** – the building of a knowledge based society and economy that can compete in the global market environment.

During the last ten years, but mainly over 1998 – 2006, Slovakia was able to implement reforms related to the first and second reform phases, which created a good basis for the further development of the country.

CONTEMPORARY APPROACHES TO PUBLIC EXPENDITURES MANAGEMENT

1. Modern Public Finance Management

1.1 Key Reasons of Public Finance Management Reforms in OECD Countries

In the early 1990's, most OECD member countries suffered from growing fiscal deficits, which, in some countries, deteriorated into fiscal crises, with many impacts on economies, mainly:

- *High level of public deficit and public debt* devastated the macroeconomic environment and negatively influenced economic growth and employment;
- *Endeavor to avoid "fiscal stress"*. Aside from the budget, a lot of extra budgetary funds were used and guarantees to enterprises were broadly provided. The presence of contingent liabilities and hidden debt were significant attributes of public finances during the1970's and 1980's;
- *Globalization*, the growing dependency of public finances on financial markets, which used to press significantly towards the transparency of public finances;
- *Public pressure for higher quality and a wider extent of public services*. Government programs too often failed to achieve their initial objectives and/or were not cost effective so that they did not represent value for money;
- During the second half of the 1990s, the upcoming *introduction of the EURO* was an important motivation for European countries in regard to public finance consolidation, which was not possible without profound changes in the budgetary system;

- Recently, *newly emerged circumstances* such as population aging, global warming and others represent additional threats to the medium and long – term sustainability of public finances, which once again cannot be addressed without profound changes to budgetary systems.

The primary motivation for these reforms was to promote economic growth through more disciplined, sustainable public finances. Therefore, during the last 15 – 20 years, more or less all developed (OECD) countries went through a modernization of their public finance management systems. It is broadly accepted that there is no best practice in this area, because historical and cultural differences among countries are deep and solutions working properly in one particular country will not work at all in another one. Nevertheless, common *principles* have been identified, the implementation of which allows the achievement of basic *objectives.*

Reform, mainly in countries with less developed public administration systems, is often understood as a pure change of legislation. It is usual, after new legislation comes into force, that no change is visible. The reason is simple – legislation only stipulates obligations and responsibilities, but says nothing about how to fulfill these obligations and responsibilities. To achieve the intended change is, however, a multidimensional task. It is necessary to change organizational structures and the mutual relations of the players involved, to train people so as they are equipped with the proper knowledge and skills, but overall, rules, procedures and motivation schemes must be changed.

Public finance management reform is extremely demanding from this point of view, because it can be implemented only through existing public administration structures. It always represents a complex institutional change, and, if is not understood in this way, will almost certainly fail. But, in any case, the successful implementation of durable institutional changes in general, and in public budgeting in particular, takes a long time

1.2 Basic Objectives of PEMR

As was mentioned already, public expenditure reform is a complex institutional change, which through newly designed rules, roles, procedures and incentives tries to develop a system that can ensure the achievement of three basic objectives:

- *Maintenance of aggregate fiscal discipline*. Fiscal discipline is inevitable in order to avoid negative impacts of the public finance position on the medium and long-term sustainability of economic growth. Fiscal discipline at the aggregate level means the presence of a system that can ensure the linkage of budget totals with macroeconomic development and not allow individual spending entities to endanger the total ceiling.
- *Resources allocation in accordance with government priorities.* In principle, in a market economy the government has only two instruments with which to influence the economy – regulation and budget. Usually, to achieve its approved priorities, a combination of both instruments is necessary. So, allocation efficiency is a capacity to link approved priorities with the budget, or, more precisely, to reflect effectively approved priorities in the budget, i.e. to expend resources in line with these priorities.
- *Promotion of the efficient delivery of services.* Operational efficiency in the use of budgeted resources refers to the capacity to implement programs and deliver services at the lowest cost (e.g. minimizing costs per unit of output).

1.2.1 Aggregate Fiscal Discipline

An important feature of a system that can keep a*ggregate fiscal discipline* is the setting of budget totals *independently of decisions that are made on the various parts of the budget*. In practice, to avoid pressure on the budget authority (usually a ministry of finance) from line ministries regarding budget chapters, this decision is separated in time and is adopted in the spring (not later than before the end of March); sector ceilings and other budget parameters are approved during autumn, i.e. after the summer holidays. Therefore, as a part of budget reform, the budget calendar must be adjusted and budget preparation split into two stages – the preparation and approval of a so called “budget envelope” and fine tuning and approval of the final budget, which is usually done in September – mid December; later approval is a signal of a strong political instability in a country.

1.2.2 Allocation Efficiency

To allocate resources in line with government priorities assumes first of all that priorities are set and are reflected in policies and programs. The first task is one for government and its central organs. Top level priorities can be implemented only through policies and programs, which are formulated and implemented by line ministries and spending departments. Therefore, strategic planning capacity must be present at the central government level, as well as at the level of line ministries along with spending departments and spending units.

Two points must be stressed in this regard. First, line ministries should not only set policy, but also plan the achievement of results. In other words, they must be the "owners" of spending programs with the ability to reallocate resources inside their boundaries to increase the level of results achievement and to increase the effectiveness of this achievement.

Secondly, the cost of programs must be known in order to give the ability to compare the effectiveness of particular programs; therefore, costing, or fiscal impact assessment methodology and procedure must be present.

Several shortcomings can be observed that are typical for budgeting in less developed countries. Even more, the presence or absence of these shortcomings can be used as an indicator of the qualitative level of public administration in a country.

Recently, many countries have tried to implement more or less complex reforms regarding public finance. Therefore, the "level of presence" of the shortcomings mentioned below can vary across countries, but usually they are inter–related.

One very common feature is *short-term budgeting*, when only annual budgets are worked out without any longer fiscal perspective. In this case the government cannot see the medium-term implications of the decisions it adopts and is under permanent fiscal stress.

Short-term budgeting is often accompanied by repetitive budgeting, which means that the budget is not stable due to shortfalls in budget revenues, as they had been predicted unrealistically high. During the year, to keep expenditure in line with budget revenues, budget updates must be approved.

There are usually two reasons for such a situation – bad macroeconomic forecasting methodology or political influence on budget revenue estimation (or a combination of both). If the first reason is the case, we can talk about *unrealistic budgeting*; if the second one, we can talk about *populist budgeting* as the government, for political reasons, knowingly plans significant public spending on items that cannot be paid for.

Instead of re-approving the budget during the year, governments used to defer expenditures, like maintenance or bills due. In some cases, the ministry of finance prepares a list of bills due with an order of repayment depending on the cash position of the budget. Deferred payments used to expand year to year, creating hidden debt. We can talk about *cashbox budgeting* and *deferred budgeting*.

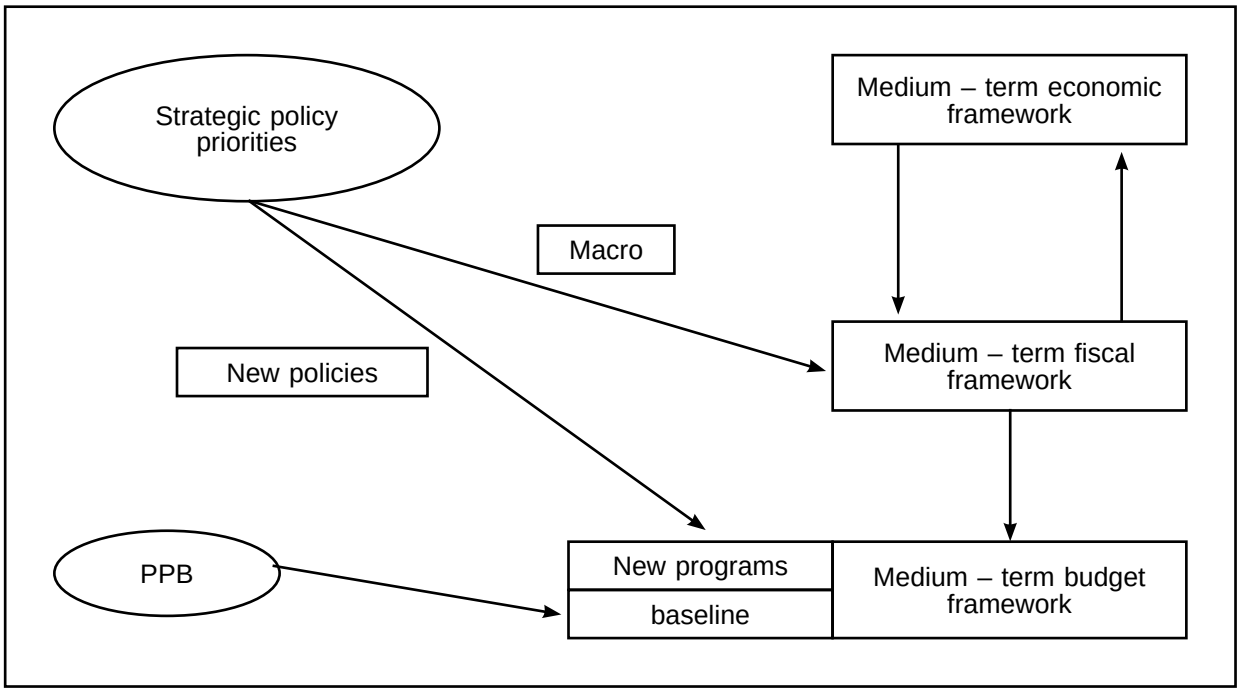
Regarding prioritization, one basic shortcoming is usually *over-prioritized budgeting*. Instead of setting a hierarchy of priorities with only several medium-term governmental priorities at the top, tens and hundreds of priorities with very weak interrelations are set up at different levels of government.

To ensure particular spending items in an unstable budget environment, the tendency to split the budget into special funds, special programs etc. is commonly used, often linked also to special types of revenues. In such cases we can talk about *"box" budgeting*.

1.3 Top – Down Budgeting

Top–down budgeting is a system of budgeting which facilitates the implementation of principles and the achievement of the objectives outlined in the previous chapter. More precisely, top–down budgeting is a tool by which these principles and objectives come "alive". As was already mentioned, the implementation of contemporary budgeting is a multidimensional task. So, top–down budgeting

has its methodological, institutional and legislative dimensions. The scheme below provides a basic idea about top–down budgeting.



1.3.1 Methodological Dimension

In regard to methodology, top–down budgeting means setting up procedures for:

- Linkage between strategic planning and budgeting, and
- Linking macroeconomic forecasts and the budget through the medium-term fiscal framework.

Regarding the budget, unlike “traditional” budgeting, we have in mind multi-annual budgets and program budgets (called also budgeting oriented to results, performance program budgeting – PPB, etc….)

Top–down budgeting is realized through a closed cycle of procedures. It starts with a macroeconomic forecast, or prediction of key macroeconomic parameters with a time horizon at least the same length as the time horizon of the multi-annual budget (the majority of countries use three year budgets), but usually longer, at least five years.

Subsequently, a medium–term fiscal framework is worked out containing the macroeconomic parameters for the budget. These two tasks, the macroeconomic forecast and medium-term fiscal framework, cannot be separated from each other, because they are not independent. Working out a macroeconomic forecast and medium-term fiscal framework is an iterative process, resulting in the setting up of probable budget revenues. Together with the political decision about an acceptable budget deficit it is possible now to estimate total budget expenditures.

To work out a macroeconomic forecast and medium-term fiscal framework, a formalized methodological apparatus is used, such as econometric macro- and sectoral models, computable general equilibrium models, but also microeconomic models, mainly for budget revenue prediction.

Sometimes missing or inappropriate models are considered as the key problem of budgeting, and a high level of effort is devoted just to this part of the whole task. In reality, no one model alone is able to stabilize public finances, if the whole budgetary system is left unchanged.

During the new budget preparation, two procedures are crucial – the formulation of a baseline budget and the fiscal impact assessment, or costing of new expenditure policies.

The first permits identifying what amount of planned budget expenditures are already spent, i.e. decisions about them were already made in legislation, contracts etc. A comparison of the baseline budget with the total expenditure ceiling determines the amount of resources available for financing new expenditure policies. Usually, this amount is lower than one can expect and represents 5 to 10 per cent of the total expenditure ceiling. Therefore, careful assessment of new expenditure policies suggested by line ministries is inevitable to maximize the extent of priorities realizable with the resources on hand.

The procedure that examines the cost of new policies is a *fiscal impact assessment* or *costing*. Properly realized costing is extremely important for adequate linkage between expenditures and the results achieved and as such is an inevitable prerequisite for governmental decisions about new expenditure policies.

Approved expenditure policies then become a part of the program budget. Though there are several models used to determine how program budgets are implemented all over the world, one principle is found in common: through the program budget, the structure of governmental policies is easily explained and a program budget is output, rather than input oriented. In other words, in a program budget goals, objectives and measurable indicators are assigned to programs, and so outputs and outcomes can be seen, including the cost of achieving them.

There is no one unique methodology of program budgeting, and implementation varies from country to country. Orientation on output and outcome financing rather than on the financing of existing capacities (organizations, spending departments institutes and so on) is a key distinguishing feature of results-oriented budgeting from “classical”, or “old-fashioned” budgeting.

1.3.2 Institutional Dimension

New budgeting requires changes in the roles of players – the responsibilities of the ministry of finance is stronger regarding supervision over the macroeconomic aspects of fiscal policy, i.e. the ministry of finance is primarily responsible for keeping the overall expenditure ceiling in line with the approved budget. Line ministries’ responsibilities rise in the area of policy design and implementation.

Also, relations between the executive (usually, the cabinet) and legislature used to change in favor of the cabinet’s stronger position in relation to budgeting, and informal rules that are not explicitly stipulated in legislation become more important. Avoiding the overloading of public servants is very important for successful reform implementation. Usually, new tasks and new responsibilities appear, so “old” and unnecessary activities should be canceled. If not, people will not be followers, but opponents, if not even enemies of the change.

ANNEX I

BASELINE METHODOLOGY – BRIEF OVERVIEW

A multi-year expenditure baseline – or a projection of baseline expenditures over the medium term is:

a projection of current year budgetary expenditures into 3 to 5 years out, as if there would not be any policy changes, i.e. the baseline is a projection of autonomous budgetary development. Autonomous budgetary development includes the evolution over the medium term of both discretionary and non-discretionary (i.e. mainly entitlement-type) expenditures.

A multi-year expenditure baseline comprises the future cost of existing and previously approved programs. By definition, expenditure adjustments that require decisions by the cabinet should be kept outside this no-policy-change forecast. The adjustments not to be added to the baseline are:

- new programs or the expansion of existing programs (new funding for priority initiatives) that have not yet been decided upon;
- the elimination or reduction of existing programs (expenditure savings) that have not been decided upon.

Within the budget decision-making process, the starting point for developing future year expenditure budgets is the ‘baseline’ or ‘no-policy-change’ future estimate of the current budget. A no-policy-change expenditure forecast is meant to ensure that the Cabinet understands the full implications of past budget decisions.

Baseline analysis provides important information on:

- existing budgetary pressures, i.e. autonomous budgetary developments,and therefore also on:
- available ‘budgetary space’ for new initiatives; and
- necessary and realistic savings targets.

The baseline is the yardstick against which all new policy based expenditure increases or decreases have to be presented. A baseline analysis is a prerequisite for a realistic budget.

ANNEX II

FISCAL IMPACT ASSESSMENTS – BRIEF OVERVIEW

Fiscal Impact Assessments (FIA) are required to assist the government when it is making decisions about policy proposals.An assessment of fiscal impact is needed to:

- Ensure that the government commits itself only to those policies and actions that can be financed by the budget, both in the short term and long term;
- Provide the opportunity to carefully weigh the benefits of a proposed policy against the costs of implementing it;
- Identify chapters that will need budget resources as a result of adopting the policy.

Principles

The following principles provide a foundation for this process:

- The fiscal impact should be objective and based on consistent and reasonable assumptions;
- All potentially affected parties should have an opportunity to estimate the fiscal impact;
- Adequate time for fiscal impact assessments must be part of the policy formulation process, but without being so cumbersome as to limit the responsiveness of the government to emerging issues;
- A final review by the ministry of finance is necessary to ensure consistency, quality and discipline in the fiscal impact assessment process.

Five Stages of Fiscal Impact Assessment

1 – Overall Scoping

- Outline of the proposal, possibly as a result of policy research;
- Link to government or ministry priority;
- Description of the activity envisaged, where it would be undertaken, and by whom;
- Indication of:
  - character of the proposal;
  - the activity/workload;
  - those likely to be affected;
  - which program/subprogram/ will be affected/

Based upon which approval to more detailed work would be given and at which stage early consultations with other bodies affected might begin.

2 – Detailed Scoping

- Preparation of assumptions in detail for each ministry and organization;
- Breakdown of the activity/workload in more detail;
- Analysis of the economic classifications that will be affected, (salaries, goods and services, transfers, capital) by chapter (sub-program) and other organizations;
- Identify need for cost and other information from other sources and seek information;
- Identify existing resources that could be used;
- Identify additional resources that will be required.

3 – Costing Inputs – First Draft

- Prepare detailed costing based on assumptions;
- Separate analysis for each element, sub-program and each ministry;
- Analyze by economic classification;

- Seek input from affected organizations;
- Consider the extent to which estimates may be subject to uncertainty;
- Consider the extent to which existing resources may be used;
- Consider the impact of proposal on existing services – will they be able to cope, will staff, buildings and equipment be sufficient?

4 – Distribution of Early Calculations/Estimates

- Distribute assumptions and estimates for review by finance section and other relevant interests;
- Consider comments and revise accordingly.

5 – Summarizing Costs and Assumptions

- Complete sections of FIA summarizing results;
- Attach supporting working papers.

PUBLIC FINANCE MANAGEMENT REFORM IN SLOVAKIA – MISTAKES, ACHIEVEMENTS AND LESSONS TO BE LEARNED

Slovakia's effort to improve and modernize public finance management started in 2000, with several measures that were undertaken over the next three years. These measures were focused mainly on the following areas:

- Cancellation of nine state funds and their incorporation into budget chapters;
- Improving financial audits by adopting the Law on Financial and Internal Audit;
- Creation of a methodology for preparing a medium term fiscal outlook and the pre-accession economic program based on EU requirements;
- Elaboration and implementation of methodology for transforming reports developed on a cash base to the ESA 95 (EU) and GFSM2001 (IMF) methodology (accrual principal);
- Limitation of local administrations' and social insurance funds' abilities to create uncontrolled deficits;
- Conceptual improvements in budget preparation by strengthening the importance of the budget envelope;
- Improvements in linking budgetary units during budget preparation;
- Implementation of a pilot project of program budgeting (also called result oriented budgeting).

Unfortunately, the changes introduced during the first stage of the reform were more a consequence of external pressures related to the pre-accession process, than the expression of Slovakia's own, internal need to improve public finance management. The changes were isolated, without common links and were more of a technical and methodological character, without creating the necessary institutional framework – personal, organizational and information capacities were based on the enthusiasm of individuals, rather than the creation of a system. Therefore, all the attributes of the old–fashioned way of budgeting were still present:

- Weak forecasting methodology causing unstable and unreliable forecasts and consequently an unreliable medium-term fiscal framework;
- A prevailing short–term approach to budgeting, without a strong role for the medium-term fiscal framework;
- Bottom-up budgeting, starting with line ministry requests instead of calculating budget envelopes.

As a consequence, Government and the Parliament faced permanent fiscal stress. The Ministry of Finance was often called upon to make unpredicted payments that had not been incorporated into the state budget, for instance, state guarantees on behalf of failed companies. A short–term approach and unreliable macroeconomic predictions led to frequent changes of the budget during the year. Pressure to exceed the budget expenditure ceiling was permanent and high. Therefore, the budget used to be modified at least once a year and the Ministry of Finance was often forced

to impose expenditure cuts on budget chapters. In this environment, the financing of governmental policies was unstable and often interrupted. Decisions were made with only the knowledge of the short-term impact and risk (annual or even shorter), in other words without considering the medium and long-term risks and impacts.

Public finance reform leading to consolidation was also necessary for fulfilling Slovakia's obligations arising from European Union membership and also for speeding up nominal as well as real convergence, which was an important pre-condition for Slovakia's entry into the European Union (see box 1).

Therefore, the government that took power after the elections in 2002 decided to launch a broad and complex public finance management reform which would facilitate the fulfillment of the country's obligations coming from EU membership, but at the same time would ensure that the public finance domain would:

- From a macroeconomic point of view become a factor supporting macroeconomic stability and the overall stability of the economic environment;
- From a microeconomic point of view ensure the smooth and trouble-free financing of state functions as achieved by political consensus.

Box 1: Commitments arising from Slovakia's membership of the European Union

During the pre-accession phase, accession countries introduce reforms and policies necessary for meeting the Copenhagen criteria – the creation of a market economy and ability to cope with competitive pressure and market forces within the EU. At the same time the part of legislation connected with EMU membership, which introduces the first building block of the macroeconomic framework, must be accepted and implemented before accession.

Immediately after accession the new member countries will have to show conformity with particular articles of Chapter 7 of the European Communities Agreement and with other acquis connected with the EMU. These include:

- implementation of economic policy as a matter of common interest and coordination of economic policy between member countries through participation in community procedures (article 98 and 99);
- avoiding an excessive public finance deficit and conformity with particular determinations of the Stability and Growth Pact (article 104);
- progress towards achieving a high level of long-term sustainable convergence (article 124) After accession the common macroeconomic framework becomes more obligatory, with a strong request for fiscal discipline and integration of other economic policies. The exchange rate policy becomes a matter of common interest, which means that member countries should avoid policies leading to excessive fluctuation of the exchange rate or its separation from economic performance parameters.

Economic policy becomes a matter of common importance and a matter of coordination and multilateral procedure supervision. Convergence programs, general economic policy rules and a growing number of tools that deal with structural policies will become primary coordination tools.

Budgetary policy and its results will be restricted by the excessive deficit procedure and to those parts of the Stability and Growth Pact, which are not tied with sanction recourse. The Stability and Growth Pact is a base of the EU framework for multilateral budget supervision.

The main commitment coming out of the Pact is the goal to reach a budget position close to balance or surplus. Stable and sustainable public finance development is considered a precondition for reaching a high level of long-term sustainable convergence. The Pact stresses the provisions of the European Communities Agreement dealing with fiscal discipline in the EMU also for EU member states with derogation. The Pact presumes annual elaboration and evaluation of medium term macroeconomic programs and their updating. New member states will therefore need to prepare Convergence Programs.

Convergence Programs should provide a real base for price stability and sustainable growth leading to creation of new jobs. In the framework of Convergence Programs countries will have to formulate a medium term fiscal position goal of close to balance or surplus of public finances including the tools for reaching this goal, expected development of the general government debt and medium term currency policy goals in relation to price and exchange rate stability.

To ensure that the reform was complete, the Ministry of Finance elaborated and submitted for Cabinet approval a document called Strategy of Public Finance Management Reform. The Government of the Slovak Republic approved this document in April 2003. According to this document, Public Finance Management Reform (hereinafter 'PFMR') should focus on three interdependent areas:

- strengthening of public finance transparency;
- strengthening of strategic planning for the allocation of resources and for the transition to result oriented budgeting;
- the creation of a system for the establishment of a stable medium-term public finance framework,

with the ultimate objective of the reform ensuring 'order' in public finance, i.e. to build a system that:

- provides timely and reliable information on the existing public finance stance;
- allows the formulation of a reliable medium-term fiscal framework eliminating fiscal stress and minimizing the consequences of sudden and unexpected negative shocks to public finance;
- allows the the Government's political priorities to be converted into the expenditure policies of budget chapters;
- ensures the effective allocation of public finance resources into individual activity levels and their reallocation based on continuous monitoring of the achievement of goals and objectives and ex post and ad hoc evaluations;
- ensures transparent and effective budget execution.

Since 2003 the Ministry of Finance has implemented a whole range of legal and institutional changes that contributed to the achievement of the above-mentioned objectives. These changes are related to the following areas:

- Macroeconomic framework of fiscal policy;
- Budget preparation;
- Changes in the budgetary policy in relation to EU accession;
- Fiscal decentralisation;
- Budget execution and debt and liquidity management – State treasury system;
- Accounting and reporting;
- Contingent liabilities and hidden debt;
- System and IT support of the reform;
- Educational activities.

2. Macroeconomic Framework of Fiscal Policy

The goal of the Strategy in this area was:

- **to develop a Governmental macroeconomic forecasting system that would provide credible and conservative forecasts of future macroeconomic development and ensure the linkage of macroeconomic quantities with parameters in the public finance area;**
- **to finalize the system of creating medium-term fiscal forecasts into a form that would meet Slovakia's reporting obligations due after its entry in the EU and at the same time that would meet the needs of the domestic decision process at the level of the Government as well as budget chapters.**

The Financial Policy Institute (hereafter 'FPI'), which is an organizational part of the Ministry of Finance, became the central unit for macroeconomic forecasts and subsequently multi-annual fiscal framework processing in line with these goals.

FPI developed its own *model apparatus* for analyzing and forecasting the macroeconomic and fiscal framework as well as for tax revenue forecasting. FPI's model apparatus is at same time linked to a global system of models, which not only enables it to work with the most recent world economy development predictions, but also prepare its own simulations of the consequences of changes in global development. In order to ensure the transparency and credibility of the forecasts used by the public finance area, the model apparatus was published and its description has been posted on the website of the Ministry of Finance.

The Ministry of Finance is currently applying a standard mechanism of communication with the public by publishing its economic development predictions three times a year.

Two committees have been established to verify these predictions – the Committee for Macroeconomic Forecasting and the Committee for Tax Forecasting. Both committees consist of professionals – public area analysts, academics and private business – both financial and non-financial. The Ministry of Finance always publishes the opinions of both committees alongside its own forecasts. Experience has proven that the forecasts delivered by the FPI are, thanks to both committees' work, generally accepted as credible and moderately conservative. So, thanks to the measures adopted, the macroeconomic fiscal framework is now a reliable starting point for budget creation, provides conditions for continuous budget disbursements and substantially better financial planning of spending units.

FPI launched a website where complete information on the Slovak economy's development since 1993 as well as current analyses and forecasts are presented. Fiscal policy is an important factor in forming the expectations of economic agents. The reliability of the macroeconomic fiscal framework of the Government and its transparent presentation to the public provides economic agents with better possibilities for incorporating inflation forecasts, predictions of the situation on the money market, predictions of interest rates, etc. into their expectations.

3. Budget Preparation

The Strategy defined in the area of budget preparation has two main goals. First, to continue in implementing program budgeting (result oriented budgeting) with an objective to strengthen strategic planning, prepare the methodology for transforming Government priorities into expenditure policies of budget chapters and finally, allocate public funds in line with principles of purposefulness and effectiveness.

The second goal was to link the medium-term fiscal framework with the annual budget through the implementation of a multi-year budget and thus create a more stable medium term budget environment for spending units.

In compliance with these goals the Ministry of Finance has focused since 2002 on budget preparation in three areas:

- implementation of program budgeting, or results oriented budgeting;
- implementation of a multi-annual budget;
- budget process legislation.

3.1 Program Budgeting

Implementation of program budgeting in Slovakia had been going on for several years. The first five budget chapters started with program budgeting in 2002; since the budget for 2004, all budget chapters were also obliged to submit their budget in the program structure. Since January 1, 2006, the program structure has been the leading structure for budget execution through the State treasury system.

In the area of program budgeting, the Ministry of Finance has focused on stabilizing the chapters' program structures by further developing program budgeting methodology and its implementation, mostly concerning the quality of goals and measuring indicators.

The importance of program budget lies mostly in three areas:

- Provides a better overview of which areas public funds go to, what activities and projects are financed with public funds, and what public services are provided by using these public funds;
- What are the effects to the public brought about by these activities, and
- Providing a better projection of the Government's policy priorities onto the structure of public expenditures.

Talking about achievements, so far the most important contribution of program budgeting in Slovakia is in the substantial improvement in the quality of information about which activities are financed from the state budget. Program structures are stabilized and currently they offer substantially better quality information on areas where the public funds go to, than they did before. Thanks to that the state budget has become more transparent, and this is one of the basic conditions for increasing expenditure efficiency.

The biggest problem was and still is insufficient progress in measuring the effects achieved by public funds usage. In other words, the problem is the low ability of budget chapters to define goals and objectives for public expenditure policies and then measure the level of their achievement. It is necessary to say in this context, that the quality of the goals and measurable indicators submitted by individual chapters varied substantially. The low quality of the proposed goals, objectives and measurable indicators shared across number of chapters has three basic reasons.

First, many chapters do not know how to define a goal they want to achieve using allocated funds within a given time frame. An opinion prevails that if certain capacities within the chapter have been formed in the past (whether it concerns a budget or semi-budget organization, research institution, department of central body of state administration etc.), it is the obligation of the state to finance its activity without having set requirements regarding volume, quality and effectiveness of outputs performed by this unit. In other words, financing of capacities still prevails over financing of outputs and outcomes.

Second, there is a poor link between strategic documents of chapters and their budget projection. While strategic documents are based on the Program Declaration of the Government and they work it up to conditions of specific chapters, their perception of budget limitations is weak. As functional analyses of the budget process revealed, this is usually a consequence of inadequate communication within a triangle including the political management of the line ministries, the department responsible for the budget and its execution, and the relevant departments responsible for implementing policies along with being a consequence of insufficient analytical-budgetary capacities at line ministries.

Third, many line ministries do not have developed data collection systems that can define the main inputs and outputs of their activities in a manner consistent across time and also be internationally comparable. These data collection systems must be in many cases created from scratch. However this is necessary if we want to measure the meaningfulness and effectiveness of public funds expenditures.

3.2 Multi-Annual Budget

A multi-annual budget is a tool to eliminate 'fiscal stress' and allows the government and the parliament to see longer term impacts of existing and new expenditure policies. It also creates a more stable environment for spending units because it allows them to plan their activities within a medium term time horizon.

In Slovakia, the Ministry of Finance has implemented the multi-annual budget methodology. The first multi-annual budget was prepared for the period 2005 – 2007; the budget for 2005 was binding, budgets for 2006 and 2007 were approved as indicative.

Meaningful and effective multi-annual budgeting depends on the functioning of a program budgeting and implementation of a 'baseline' methodology. This methodology allows setting future expenditures for existing policies, which means that the budget process does not start from a zero point every year but allows focusing during the budget process on allocating free/available funds or reallocating funds in case of changes in expenditure priorities. The application of a 'baseline' methodology thus significantly improves the quality of the budget process while reducing the time requirements of its individual phases.

3.3 Budget Process Legislation

The implementation of the budget process reform was realized through a new legislative framework for budgeting. This framework was prepared and approved during the year 2004 and has been effective since January 1, 2005. Two new acts on budgetary rules – Act No. 523/2004 on the budgetary rules of public administration and Act No. 583/2004 on the budgetary rules of local governments are key pieces of legislation forming this framework. The new legislative framework for budgeting carries out, among others, the following important tasks:

- prevents public sector institutions from accumulating debt;
- prevents the passage of laws in the National Council with budget consequences that are not covered by resources;
- strengthens the role of program budgeting;
- strengthens the significance of a medium term budget outlook – the implementation of multi-annual budgeting;
- strengthens the decision power of budget chapters over their expenditure structure;
- creates the whole public budget following EU methodology.

3.4 Organizational Aspect of Budget Process

The new procedure for budget preparation required changes in the budget process organization. First, a stable time schedule for budget preparation was adopted (see box 2). Chapters now plan their internal time schedules according to this time schedule with sufficient advance notice.

Second, the organizational structure of the Budget Policy Section at the Ministry of Finance has adjusted to the new form of budget process. The section now consists of four departments – the Department of Public Administration Budget, Budget Regulation Department, Budget Analysis Department and Department of Budget Execution.

The establishment of the Budget Analysis Department was primarily an important change that gradually improved the quality of communication between the Ministry of Finance and the chapters. Employees working for this department know in detail the expenditure structure of the particular chapter they are responsible for. One of their tasks is also to advise the chapter in the formulation of new expenditure policies and to help with implementing new methodological procedures – particularly in the area of monitoring and evaluating programs.

During the public finance management reform, a number of chapters went through a phase of budget process formalization. Clear competencies of departments during the budget creation were specified, internal time schedules were approved and the analytical capacities of budget departments were strengthened.

4. Fiscal Decentralization

In accordance with the government policy statement, in 2004 the Ministry of Finance prepared in a new system starting in 2005 for financing municipalities and higher regional units (VUC)[1], the aim of which is to strengthen the tax revenues of municipalities and set the tax revenues of VUC, and at the same time to strengthen the independence and accountability of territorial self-government decisions about the utilization of public resources. The new system of financing also contributed to the stabilization of revenues of regional self-government in the long-term. The motivating effect of the new system to execute such policies, which would increase the resources available to municipalities and VUC, is an important part of the reform.

Fiscal decentralization was a follow-up to the transfer of competences from the central state administration to municipalities and VUC in accordance with Act no. 416/2001 Coll. As stipulated by this legislation, competences were transferred to regional self-governments stepwise from January 1, 2002 through January 1, 2004.

An important part of fiscal decentralization is the financial settlement system, which respects the principles of solidarity, fairness and motivation. The fair allocation of resources to municipalities is assured by taking into account not only the total number of inhabitants in a municipality, but also their age structure adjusted by the municipality's geographic location. In the case of VUC, the age structure of the inhabitants is complemented by the characteristics of the land, population density and length of the II. and III. class roads which are in fully in their ownership.

A new system of financing municipalities and VUC came into force on January 1, 2005. Its starting aim was to ensure the same volume of resources for municipalities and VUC in 2005 as they would have gotten in the old system and that this volume of resources would increase in the following years. Three years since the fiscal decentralization was brought into force, the financial flows to regional self-governments are smooth from the beginning and in accordance with approved legislation.

Fiscal decentralisation was implemented through the following legislative norms:

- Act no. 564/2004 Coll. on the budgetary purpose of income tax yields to self-governmentand on changing and amending some acts;
- Government decree no. 668/2004 Coll. on the distribution of income tax yields to self-government;
- Act no. 582/2004 Z. z. on local taxes and local fees for community waste and small construction waste.

5. Budget Execution and Debt and Liquidity Management – State Treasury System

The main objective of the State treasury system was to implement in Slovakia a modern, centralized system for debt and liquidity management, which would decrease the cost of ensuring liquidity and state debt servicing, increase financial discipline in the public administration, improve the information base for public finance management and increase public finance transparency. Therefore, since 2002 the Ministry of Finance has focused on completing the legislative, institutional, organizational and technical establishment of the State treasury system.

The legislative preconditions for starting the development of the State Treasury System (STS) were created by adopting Act no.291/2002 Coll. On the State Treasury. The STS is defined as one of the key elements of the public finance management system. The main tasks of the STS are:

- **Budget execution control**. It means ex- ante control of budget withdrawals according to the approved budget of the spending unit;
- **Accounts management and system of payments**. The STS administers revenue and expenditure accounts of clients and executes payments;
- **Debt management**. This refers to state debt and financial flow management from a medium-term point of view.

1 The territory of Slovakia is divided into eight VUC.

- **Liquidity management**. Liquidity management consists of cash flow management (sufficiency of financial sources for the execution of payments on a daily basis) and of management of financial flows within 1 year with a focus on the following quarter;
- **Reporting**. The state treasury ensures the collection and control of financial reports from all spending units in order to generate consolidated reports.

STS tasks are executed by four organizations:

Ministry of Finance manages the state debt and STS mainly on a strategic level; besides this, it consolidates reports and prepares the state's final account.

State Treasury ensures the full administration of revenue and expenditure accounts of spending units, executes domestic and foreign payments, aggregates the required reports from specific organizations and ensures direct communication with STS users.

Debt and Liquidity Management Agency (ARDaL) executes operations on financial and capital markets to ensure liquidity and debt management as well as to manage debt on an operational level.

Data Centrum operates the STS information system and ensures technically the communication with clients.

Two new organizations – State Treasury and ARDaL – started to be built in January 2003, with the aim of ensuring the operation of the STS as of January 1, 2004. During 2004, the State Treasury clients were gradually connected to the system in several phases, and this process was finished on January 1, 2005, since when it has been operating in full scope. In total 1658 State treasury clients were connected to the STS information system during 2004, with a total number of approximately 54,000 accounts.

ARDaL took over state debt and liquidity management from January 1, 2004. ARDaL was created as small, fully professional agency. Its main goal is defined as "to ensure liquidity and market access for financing the state needs in a transparent, prudent and cost-efficient way, with the assumption of keeping debt risks at an acceptable level".

In accordance with international best practice, the Ministry of Finance in cooperation with ARDaL and other interested institutions developed a system for the division of competences between the Ministry of Finance, ARDaL, State Treasury and Central Bank (NBS). The Ministry of Finance is accountable for the debt management strategy. In November 2003, the Ministry of Finance submitted to the Government the "Debt Management Strategy for 2004 – 2006", a primary conceptual document, which defines the medium-term framework for debt management. This document is updated every year and approved by the Government together with the state budget proposal.

Operational debt management is a competence of ARDaL. A Debt Management Committee composed of representatives of the Ministry of Finance, ARDAL and NBS was established in order to control compliance between the operational execution of debt management and the approved strategy.

After one year of operating, the STS has already proved its viability. Despite the fact that the year 2004 was a transition period, when the information system was tested, interfaces between particular organizations were adjusted, the competence and control division system was adjusted and financial flows of public administration were transferred to STS in several phases, STS already showed its positive aspects.

In regard to qualitative improvements, STS:

- created preconditions to improve budget execution management through ex-ante control, which contributed to the introduction of significantly harder budget constraints and created other important barriers for the creation of new debts in public administration, increased financial discipline;
- ensured the raising of synergy effects from debt and liquidity management;
- enabled centralization of all other public financial resources in one account, where these can be later used to cover liquidity needs and debt operation;
- increased the transparency of the whole public finance management system.

The State Treasury System also had a significant financial effect, where the direct and indirect positive effect of the STS on public finances for 2004 was estimated at approximately 700 mill. SKK. These are mainly effects reached thanks to operations on financial markets and decreases in costs for state debt and state budget liquidity.

6. Accounting and Reporting

Since 2000, the Ministry of Finance has implemented and gradually improved the methodology for transforming data reported on a cash base to ESA95 methodology (accrual principle) in such way that the most important transactions are "accrualized" (additionally and on an aggregated basis the revenues and expenditures are time differentiated). Thus the commitment related to EU membership to report the financial position of the general government in ESA 95 was fulfilled. The transformation of aggregate data, however, does not ensure reliable and auditable data on the financial position of public administration; this can be done only through accrual-based accounting. **The public finance management reform strategy therefore envisaged a SWOT analysis of the transition to accrual accounting in public administration, taking into account all related costs and their potential effects**.

The SWOT analysis conducted indicated weaknesses and the unsustainability of the existing accounting system. The difference between Slovak practice and best practices is summarised in following table:

Slovakia – before reform	**Best practice**
Large number of various systems	Unified state accounting system
Focus on formats of standard reports	Focus on data content
Limited reporting capacity	Unlimited reporting capacity
Information is accessible from the reports	Information is accessible based on authorized data access
Doubtful data integrity	Auditable data integrity
Supply-based information flows	Request-based information flows

The Slovak system insufficiently fulfilled criteria on the information provided in terms of reliability, comparability, timeliness and comprehensibility. Accounting methods in the public administration were not applied uniformly, a large amount of un-auditable software products for accounting and reporting were used. The data used for decision making were often not time-consistent and they were not derived from primary data, but rather through the compilation of data aggregated on different levels. Data ownership was not clearly defined, i.e. who is accountable for their quality and who authorizes access to them. *The system used did not provide sufficiently reliable and auditable data on flows in public finance and it did not provide timely and relevant information for managerial purposes.*

In January 2005, the Ministry of Finance decided to prepare the implementation of a unified state accounting system. The goal of this project was to design and implement a public administration accounting system that records, analyzes, classifies, summarises and interprets the results of financial and economic activities in the public administration, with emphasis on:

- provision of the managerial information necessary for planning, organization and control;
- preparation and provision of financial reports and other fiscal reports, elaborated in accordance with specific accounting standards and reporting standards for external users.

The project consisted of three components. *The first component* was the implementation of international public administration accounting standards (IPSAS) into binding legal provisions for which the Ministry of Finance is authorized in accordance with the Accounting Act.

The second component was to ensure the systems and IT support for the application of the new accounting and reporting methodology at the state consolidation level, as well as at the level of public administration accounting units in order to establish an integrated system providing the relevant and credible information necessary for developing auditable state financial statements in compliance with IPSAS.

The third component was a training program and permanent educational process for accountants from the public administration sector that will develop their skills for keeping books and drawing up the required financial and other statements in compliance with the new accounting and reporting methodology.

Accounting and reporting reform was considered as a key change, without which no further development in other areas of public finance management reform would be possible – i.e. budget analysis and program budgeting, consistent fiscal risk management or other public finance areas.

The original goal was to submit an amendment to the Law on Accounting to the Government session by the end of June 2006, but due to the shortened period of the Government in the office it was impossible and the full launch of the reform was postponed by one year – from January 1, 2007 to January 1, 2008, i.e. state financial statements should be possible to audit for fiscal year 2008.

7. Contingent Liabilities and Hidden Debt

Contingent liabilities and hidden debt had been one of the most destabilizing factors of public finances in Slovakia. Therefore, a main goal of the Strategy in this area was twofold:

- Identify contingent liabilities and hidden debt already present in the economy and to assess their volume;
- Eliminate the threat coming from the past.

The Ministry of Finance prepared an analysis of public administration indebtedness in accordance with the Public Finance Management Reform Strategy goal. This report identified three areas of potential liabilities and hidden debt. They comprised liabilities resulting from:

- Absence of hard budgetary constraints for spending units providing public services;
- Existence of unfinished litigations.

In the past state guarantees granted for commercial credits represented an extraordinarily risky area. Records of these state guarantees were unreliable and agreements on the state guarantees granted were not legally unequivocal (especially with regard to the subject of guarantee).

Since 2002 several principal changes have been implemented in the area of contingent liabilities and hidden debt. The Ministry of Finance carried out an inventory of the state guarantees provided. Liabilities with a state guarantee were divided into two parts. The first part of these liabilities was being repaid by debtors, and therefore they did not create significant risk to public finance. For the second part of the liabilities, a valuation of risk for public finance resulting from the credibility of the relevant debtors was done and thus valuated state guarantees became an integral part of the reported state debt in compliance with ESA 95 methodology. Consequently, the Government has distinctly restricted granting new state guarantees and the authority to their approval was transferred to the Slovak National Council, which significantly improved transparency in this area.

As for hard budgetary constraints, in cases when systematic measures were adopted and reforms minimizing the risks for creating new debts in the future were implemented, the Government set off its debts (this related to the health service, transformation of the regional education system of funding and restructuring of Slovak television). To be fair, it is very difficult to impose finally and forever a hard budget constraint on public entities, because it depends on politicians' stability in defending such a decision and to resist to pressure from opponents related to the inevitable failure and bankruptcy of public entities. Close to elections, the stability of politicians used to fall lower and lower.

In the second area, after the materialization of the potential contingent liability resulting from arbitration with the Czechoslovak Commercial Bank in the matter of Slovenska inkasná, the outstanding and threatened litigations did not represent a relevant risk for public finance. It must be stressed however, that cost of lost litigations during the 1990's was quite high, because legal knowledge and especially legal cognizance was at a very low level after the Socialist era. In other words, the perception of politicians and state officials was that the state is allowed to do everything without any punishment. As was mentioned, the cost of this state administration failure was very high for tax payers.

8. System and IT Support of the Reform

Achieving public finance management reform goals requires the implementation of adequate information technology (IT) support. Developing information systems for public finance management was being implemented in Slovakia in parallel with the formation of a public finance management system during the 1990's. In 2002, the Ministry of Finance's area of competence alone had seven information systems that were implemented in different times and more or less as single-purpose systems. In addition, other accounting and software products used by individual chapters, budgetary and semi-budgetary organizations must be added to these information systems. In fact the beginning of the effort to integrate information systems in the area of public finance management started with the implementation of the State Treasury's information system.

Implementing public finance management reform goals requires corresponding support by information technologies. The Ministry of Finance therefore initiated an analysis of the current status of public finance management IT support. The analysis revealed that information systems, except for newly developed systems such as the State Treasury information system or the EU funds management information system, were in the past designed and implemented with a considerable lack of coordination and adequate level of integration. At the same time these systems have limited capacity, they lack sufficient standardization, they do not have adequately defined ownership of data and access rights to the data, they have limited capability to access the data, to select the data based on defined criteria and to share subsequently the data with other applications.

To remedy these problems, the Ministry of Finance developed the Strategy for the Integration and Further Development of IT Support for public finance management. The task of the Strategy is to design an integrated system that would utilize existing components as much as possible but at the same time would remove bottlenecks in the integration of individual systems, facilitate the central role of newly designed system for accounting and reporting in public administration and all at a minimum of funding. The Strategy required approval by the Ministry of Finance.

The analysis of the current condition of IT support for public finance management therefore became an integral part of public finance management reform. The Strategy developed within the project became a base for drafting the material called Strategy for Building Information Systems for MoF of the SR sector that was then approved by the Ministry of Finance Management Board on April 24, 2006, and which was later on implemented.

9. Educational Activities

A specific feature of any public finance reform is the fact that it is implemented through the functioning of the state administration. To ensure that the reform will not stay on paper only, it is necessary to create administrative capacities for its implementation. Along with institutional and organizational activities, extensive educational and training activities must also be included. The goal of these activities is to create personnel preconditions for the implementation of changes in processes and procedures so they become part of standardized processes and methods in budgeting.

Training activities were oriented towards those Ministry of Finance employees who are holders of the reform. In particular, these were employees of the Budgetary Policy Section and Financial Policy Institute. In the case of the Budgetary Policy Section, employees of the newly created Budget Analysis Department went through a series of trainings. Employees of the Financial Policy Institute had training in the field of macro-economic analyses and forecasts, macro-economic modelling, modelling of tax revenues, and training in the use of modelling tools for macro-economic modelling, which were developed as a part of Public Finance Management Reform.

The Ministry provided consultancy for the six biggest budget chapters (Ministries of Labor, Education, Transport, Agriculture, Finance, Industry). This consultancy was concentrated in two main areas – the implementation of program budgeting and a proposal of institutional and organizational changes supporting program budgeting in the chapters and implementation of multi-annual budgeting. Part of this consultancy was also educational and training activities that would be extended to other chapters in the future.

Part of the introduction of the State Treasury System was an extensive training program, which was provided to approximately 5,000 employees of the State Treasury's clients. The goal of this program was to provide employees of client organisations with the basic skills necessary to work with information system of the State Treasury. These trainings were also elaborated and realized for State Treasury and ARDaL employees.

During the process of designing and implementing Pubic Finance Management Reform it turned out that there was no instrument in the public finance management system that could be used for training new public administration employees or to promulgate new knowledge and skills necessary for work in this area. Therefore the creation of a permanent training system for State Treasury clients was a part of the Pubic Finance Management Reform Project. The building of this system, which was coordinated by the Ministry, will be able to identify educational and training needs, propose the content and form of educational and training activities, organise these activities and then evaluate the quality and impact of these activities for final recipients.

Conclusion

Slovakia now has a transparent and credible system for creating and executing the budget that corresponds well with the standard of OECD countries, while in the area of budget execution and debt management it has achieved a higher standard level. Further steps in public finance management reform can therefore be aimed at achieving a gradual synergic effect from changes in the relevant areas. From this view it is most important:

- In the budget management area:
  - to create a mechanism for strategic programming and its linkage to budgeting;
  - "to close" the budget cycle: budget preparation– budget execution– budget evaluation– budget preparation;
  - to decide further steps in multi-annual budgeting;
- to implement the state accounting and state reporting reform;
- to integrate IT support for public finance management to achieve its effectiveness and flexibility with regard to its future development possibilities.

Budget Management

As for the first area, the new election period creates space for the Ministry of Finance to consistently insist on developing strategic documents, including their schedule of implementation and to develop assessments of impacts on public administration (called FIA – Fiscal Impact Assessment). The assessment methodology is in place. It was submitted by the Ministry of Finance to the Government session as a solution of the task resulting from Government resolution no.309/2005.

The second area relates to developing a methodology for monitoring and evaluating program budget execution. A document called the Strategy for Building Capacities for Public Administration Budget Assessment (funded from PHARE funds) is a good basis for further steps in this area. Resources for the follow-up project with the objective to develop methodology and to build capacities for monitoring and evaluation system are also provided from PHARE funds. The tendering procedure, however, seems to be unnecessarily slow and should be speeded up.

At present the multi-annual budget is obligatory only for the following year and the budgets for the second and third budget cycle years are only indicative; it seems to be rather a budget outlook than an actual multi-annual budget. Further steps towards multi-annual budgeting will be enabled through the implementation of the base-line methodology. Both methodologies, i.e. base-line methodology and FIA methodology, will enable the determination with greater exactness future budget expenditures and create a scope for increasing the bindingness of the budget to those years for which the budget is currently only indicative. Only the implementation of both methodologies in full through budget chapters will enable making the second and third years of the three-year budget obligatory. In addition, it will facilitate a transfer from the current practice of "priority reserve", which focuses discussion on the budget to its small part, to discussion on really free resources for funding new policies.

A shift in the above three directions is required with regard to its methodology and even more so with regard to building institutional capacities for the successful implementation of budgetary reform.

The recommendations are as follows:

First, the Budget Policy Section and the Ministry of Finance must have a clear concept of the future direction and time horizon of budgetary reform. This discussion is absent and even the Budgetary Policy Section does not have a uniform concept even though their interest in the further progress of reform is evident. Such a common concept should also be adopted by the new management of the Ministry of Finance.

Second, any decision on further steps for implementing program budgeting should be political and it should be adopted at the governmental level. If program budgeting and multi-annual budgeting will remain only a priority of the Ministry of Finance, they cannot be successfully implemented, because it involves not only methodological change but also institutional reform that requires organizational changes within the respective chapters, amendments of powers, and changes in the setup of internal processes. It refers not only to program budgeting methodology but also to FIA and the base line. In the chapters the responsibility should unambiguously be with the state secretary not only formally but in reality. Present experience demonstrates that in chapters where the substance of this change has been well understood and sufficient attention of the top management has been paid to it, the progress in budgetary reform implementation has been of much higher quality than in chapters where it did not happen.

Third, the Ministry of Finance should propose the appointment of a Steering Committee at the level of State Secretaries, who would responsible for the preparation of the budget. The Steering Committee at the level of general directors of relevant sections proved nonfunctional, mainly because general directors were unable to fight down internal resistance and change internal procedures in budget preparation in favor of higher responsibility of materially responsible units for the fulfillment of goals, objectives and measurable indicators.

Fourth, in developing new methodological procedures, greater attention should be paid to the procedural side with regard to the demands on administration and efforts should be made rather to reduce than to increase it. An integral part of the methodologies should be recommendations for the ministries/chapters on how to organize the budgetary process in order to avoid the collision of new procedures with the old organizational structure and competencies of respective units, and they should be consulted ex- ante and not ex- post with the personnel ensuring systems and IT support for budgeting.

Nowadays some possibilities for small adjustments in program budgeting methodology that could increase user comfort, improve the possibilities for budget management by the chapters and decrease demand on administration have appeared. They comprise the following changes:

- increasing the number of programming structure levels within the budgetary information system (BIS) would enable the chapters to better utilize BIS facilities for own internal management;
- the obligation to demonstrate one-to-one linkage of the program structure with functional classification at one of its levels (e.g. project/component) would de facto enable the cutting down of the budget by one dimension;
- integration of the investment register into the budget at the project level would improve the budget's homogeneity and strengthen the position of the program structure as a management structure for budgeting, in a similar way as
- the option of several types of activities at lower levels of the program structure with a different methodology for setting up objectives and measurable indicators.

Fifth, the new methodology should not be applied globally but through pilot projects. This procedure would decrease the need for capacities at the Ministry of Finance and especially at the Budgetary Policy Section.

The sixth refers to the internal arrangement of the Budgetary Policy Section. In time it proved that the interface between individual departments was not unambiguous. Examples include competencies for developing new methodology procedures between the Budget Analyses and Budget Regulation Departments, and the relationship between the Public Administration Budget Department and the

Budget Analysis Department with regard to monitoring budget capital expenditures. It can be seen already that the Budgetary Policy Section does not have sufficient capacities to become the leader of the follow-up progress in budgetary reform. This fact will become obvious when the advisory infrastructure under the Public Finance Management Reform Project leaves.

Accounting and Reporting

During the implementation of the respective public finance management reform components it occurred that the transfer to accrual accounting is a key precondition for interlinking respective public finance management reform components to achieving the synergic effects of the reform.In addition, the introduction of uniform state accounting will not only enable the auditing of state financial statements but will also enable:

- the meaningful implementation of program budgeting, i.e. really measure the effectiveness andefficiency of public finance spending;
- to objectify public policies expenditures and thus increase the quality of multi-annual budgeting;
- to fully utilize the potential effects from the State Treasury System's operation, mainly from centralized debt and liquidity management.

Postponing the full transfer to new accounting rules in public administration can be only welcomed, because it will provide time for the professional preparation of the public administration.

Project implementation is supported by considerable consulting capacities (PwC/KPMG consortium) financed from PHARE funds. This project, however, is focused nearly exclusively on state reporting and does not cover the three areas mentioned above. It is understandable with regard to the primary competency of the State Reporting Section. It seems, though, that communication between the State Reporting and Budget Policy Sections is not sufficient in this regard. The Budget Policy Section should minimally analyze the contribution of the new accounting system for the improvement of the information basis for budget preparation, and complications (mainly the increase in administrative demandingness) that the new accounting system may bring for budgetary organizations and institutions receiving contributions from the state budget without its projection into budgeting.

As for the State Treasury System, transfer to accrual accounting is necessary for the full utilization of the synergic effect the State Treasury System may bring. Cash accounting is unable to cover a number of operations, mainly in the area of debt and liquidity management, which aggravates the information basis for risk management. In addition, accounting on cash principles does not enable the correct allocation of State Treasury performance effects and thus creates an obstacle to developing a methodology for measuring and evaluating the financial benefits of the State Treasury System.

IT Support for Public Finance Management

Regardless of the progress in information system integration within the Ministry of Finance's departments and a developed concept of its future direction, it seems that the Ministry of Finance in some cases drops its ambitions. This relates mainly to the implementation of state accounting reform through the central accounting system, which was dropped, and a procedure through defining the consolidation field for primary data was selected. This procedure means that one of the main effects of introducing the new accounting system – the ability to track down data in state financial statements to initial data – will be partially lost. Arguments about the high cost of such a system are not justified because they do not take into consideration the cost of rebuilding accounting systems in the respective organizations executing the budget. Equally, the argument about the strong position of the Ministry of Finance, as long as it has access to primary data, is not justified. If there is no political will to make primary data available to the Ministry of Finance to the full extent possible, it can be done through legislative, technical and procedural measures. If the total cost of building information systems within the Ministry of Finance and public administration as a whole is taken into consideration, the potential savings (if objective) cannot counterbalance the fact that a modern and effective solution has been dropped. Therefore it is necessary to recommend the Ministry of Finance to come back to this decision and reconsider it. In addition, regardless of multiple reorganizations and strengthening of the Information System Strengthening department, it seems that its satisfactory operation demands at least additional project managers.

State Treasury System

The State Treasury System is a quite complex system fulfilling many functions. It has a lot of users and is represented by several subjects. Greater attention should therefore be paid to its management in the future, mainly on setting the interface among the respective subjects ensuring the operation of the State Treasury System, process management, the efficiency of controlling mechanisms and work with clients. Regardless of the executed audit of interface among involved organizations (State Treasury, DLMA, Ministry of Finance, Datacentrum) relations and competencies have not been fine tuned yet, which results in tension among employees of the Ministry of Finance and DLMA. The division of activities and competencies is necessary mainly with regard to two aspects:

- administrative load of DLMA employees with regard to their reporting duties towards the Ministry of Finance;
- operational accounting of state debt (professional capacities for this area in State reporting section seem to be insufficient) until the transfer to the new accounting system.

The unsolved division of activities and competencies among subjects creating the State Treasury System sometimes results in bureaucratic, management and interpersonal tensions among otherwise highly qualified professional teams of all parties.

Additional Recommendation

Contingent Liabilities and Hidden Debt

As stated above, currently contingent liabilities and hidden debt in the state sector are minimally under control with regard to the medium-term perspective. In addition, base-line methodology and fiscal impact assessments enable in advance to identify the risk of potential liabilities in the future. Nevertheless, this area needs constant attention. Although the area of HTU budgets and area of municipality and village budgets has been regulated by the Law on Budgetary Rules of Territorial Self-governments, it still represents a potential risk in this area. It may be anticipated that so called PPP – public private partnership projects will become popular in the near future. Although the Ministry of Finance prepared and the Government approved governmental policy for this area, and a certain form of regulation is incorporated in the laws on budgetary rules, the risk of inferior quality projects, which may endanger the stability of local budgets in future, is real. For this reason the approval of a technical assistance scheme for preparing PPP projects (funded from structural funds) can be recommended so as it is proposed in the material, “Proposal of Innovative Financial Tools for the National Strategic Reference Framework 2007 – 2013 (Phase II)”, which the Ministry of Finance submitted to a Government session in June 2006. This scheme would enable the resolution of the problem of inferior quality projects, as well as control of the Ministry of Finance over a great number and volume of existing and prepared projects.

MODERNIZATION OF THE STRATEGIC PLANNING AND MACROECONOMIC FORECASTING SYSTEM AS A BASIS FOR EFFICIENT BUDGETING IN UKRAINE

Ukraine is on the path towards building a modern state administration according to best practice as observed all over the world. Ukraine’s ambition to become a member of the EU is a very good driving force for that, as was observed in many countries that have recently become members of the EU. The accession process, if it is a desire of all key players in the country, can significantly change not only the system and procedures, but also the minds of people. Sometimes, this change is more important than membership as such.

This chapter is based on a profound analysis of Ukrainian legislation, as well as on many discussions with relevant state officials and other players involved in the formation of strategic planning and

budgeting in Ukraine. The main purpose is to provide, based on personal knowledge of the author of the theory, but also on knowledge of the difficulties during the effort to implement radical changes in strategic planning and budgeting, and wholehearted advice on how to change a present system that is undoubtedly leading to the waste of scarce public resources.

10. Linkage between Strategic Planning, Prioritization and Budget

Problem No.1: missing strategic planning procedure in the country and the low ability to set up a hierarchy of priorities at all levels of government.

Strategic planning and prioritization is formalized by several laws and governmental decrees, which tell, however, prevailingly only "who and what", but not "how and when". The main documents regulating this area are following:

- Law of Ukraine On State Forecasting and Elaborating Programs of Economic and Social Development of Ukraine, in connection with,
- Resolution of Cabinet of Ministers of April 26, 2003, No. 621 On the Elaboration of Forecasting and Program Documents for Economic and Social Development and On Preparation of Draft State Budget,
- The Law of Ukraine On State Targeted Programs, and,
- The Budget Code.

According to this legislation, a series of documents at all levels of state administration must be prepared on annual basis. This complex of documents creates a very complicated, internally heterogeneous and even controversial system, and also a system extremely burdensome to the state administration at all levels, providing a lot of useless and unreliable information while consuming time, which is consequently missing for real strategic and programming considerations. Additionally, the whole system of forecasting and programming involves an enormous number of institutions and thus coordination in a very tight time frame is extremely difficult.

Within the system, several discrepancies are present. Here are some of them:

- The whole system is predominantly about forecasting and programming; funds allocation for programs – budgeting – is overshadowed;
- There are no medium – or longer – term programming documents. The state program for economic and social development is stated as short-term;
- According to the Budget Code, "Guidelines of Budget Policy for the Next Budget Period" (the Budget Resolution) is a document that should codify important parameters of budgetary policy. Article 33, Section 3 of the Budget Code stipulates the content of this document. Important information about intended governmental fiscal policy is, however, still missing (tax policy, public sector wage policy, price policy, social policy), as well as important parameters regarding the macro – fiscal framework (such as expected revenues, expenditures according to economic classification….);
- There is no programmatic policy document guiding budget preparation. The state program of economic and social development, which contains objectives and priorities for next year, is developed in parallel with the budget and there is no mechanism ensuring their full and mutual correlation;

- There are also discrepancies in the budget preparation calendar, for instance:
  - According to the Budget Code, no law affecting the budget for the next year can be submitted to the Verkhovna Rada after August 15 (Article 27), but the deadline for the law on the State program for economic and social development, which significantly affects the budget, is set for September 15 (together with the budget),
  - According to the Budget Code, a decision about the Budget resolution must be made by the Cabinet on May 25, and the deadline for submitting the budget to the Verkhovna Rada is set for September 15. That means that budget preparation by key spending units and their discussion with the Ministry of Finance must happen over 3-4 months, while the preparation of the whole set of forecasts and programmatic documents takes ten months[2].

In the background of this problem, a basic misunderstanding lies in what the difference is between short-term and long-term views, as well as between forecasts and analyses. A forecast is usually a prediction of what will happen if an event or events occur. A forecast is usually quantitative, short-term, and contains quite detailed descriptions of an economy through tens or even hundreds of indicators; but as the forecast period lengthens, the number of indicators decreases.

A quantitative economic forecast is reasonable at the macro level and in the short and medium term horizon. At this level, the external environment, at least in the form of scenarios, can be formulated. Quantitative economic forecasts at the regional and sectoral levels are not reasonable because they do not represent economic entities and can be described quantitatively only with great difficulty.

Analysis, on the contrary, is the way how to identify problems and their origins, and can become a starting point for formulating strategies. In fact, an *analysis*, not a forecast, is the basis for policy decisions, while a forecast can be a part of an analysis, or its starting point. Analysis is the first part of formulating a strategy; strategy is a basis for policies and based on policies, programs (including budget programs) can be formulated. Therefore, analysis also makes sense at the regional and sectoral levels.

In the Ukrainian context, forecasts are often mistaken for analysis. This becomes clear when taking into account the definition provided by the Law of Ukraine On State Forecasting and Elaborating Programs of Economic and Social Development of Ukraine, which stipulates (Article 1) that "The state forecasting of economic and social development is a scientifically justified foresight of the directions of development of the country, individual economy sectors or individual administrative-territorial units, the possible future state of the economy and society, as well as of alternative ways and terms of achieving the parameters of economic and social development. *A forecast of economic and social development is a means for justifying the choice of a specific strategy* and the adoption of concrete decisions by legislative and executive bodies, and local governments with regard to the regulation of socioeconomic processes".

By understanding the difference between forecast and analysis, it is possible to tighten the relation between forecasts and programs. An analysis does not necessarily need to be done on an annual basis; analysis is necessary when a problem is politically recognized and the policy to resolve it needs to be developed. With the acceptance of this approach, the whole system of forecasting and strategic planning can be simplified significantly.

Recommendation

First of all, strategy planning and programming should follow political cycles. This means that one political document must be worked out when a new government takes power. In parliamentary democracies a Governmental Declaration, which a new cabinet submits to the parliament within a certain period of time after taking power, is usually such a document.

Based on this document, priorities are formulated, analyses and strategies of particular areas are worked out and consequently policies are formulated. All this used to be worked out by designated agencies during several months after a new cabinet takes power[3]. Particular areas can include those such as the competitiveness of the economy, healthcare, energy security and others. What is important is that all these strategies and policies are at least medium-term, and there is no reason to go through the whole task on an annual basis. In addition, there is also no need to take all these documents to the legislature; the parliament already approved and expressed confidence in the cabinet.

Annual tasks arising from medium- term policies are usually formulated in two documents –the annual plan of activities and the cabinet's Legislative Plan. Again, both documents should be pub-

2 Recently, the new Law on Cabinet of Ministers of Ukraine changed this situation and in 2007 a so-called Budget Declaration was submitted to Verkhovna Rada on March 1. This document is, however, more declarative than quantitative; it contains a lot of good intentions for the future, but is not good guidance on how to launch a budget preparation process.

3 The state program of economic and social development for 2007, in spite on the fact that is stated as a short – term document, in Part I – Objectives and priorities for social and economic policy in 2007 – can represent such a document. Most of the objectives and priorities are medium – term, not short – term.

lished, but remain internal documents of the cabinet. In relation to the parliament, in the middle of a political cycle, the cabinet prepares information about the fulfillment of the Governmental Declaration, and the same is done before the next elections.

Under such a system, the state administration has much more time for real work, rather than only preparing documents saying what should be done, but having no time to do it in reality.

Ukraine's Instruction of Cabinet of Ministers dated October 4, 2006 No. 504 is a good step in that direction. Mainly, the introduction of long, medium and short-term strategic documents, such as:

- Medium–term Activity Programs of the Cabinet of Ministers of Ukraine;
- The Main Directions of Budget Policy and Forecast Indicators of the Consolidated Budget and State Budget of Ukraine;
- Strategic Action Plans of central executive agencies;
- Action Plan of the Cabinet of Ministers of Ukraine to implement the Activity Program of the Cabinet of Ministers of Ukraine;
- Annual work plans of central executive agencies, pushes the Ukrainian state administration towards the adoption of a strategic vision and transformation of this vision into inter-related programs. The implementation of this way of thinking will require the building of adequate capacities in the affected governmental agencies, including training programs involving adequate technical assistance.

The number of documents, however, seems to be quite high, and the content of the documents must be specified more precisely, but preferably not specified by a law. Keeping flexibility in this area is important. Otherwise frequent changes in legislation will be inevitable.

Problem No.2: strategic planning goes besides budgeting.

Different programs, mainly so-called "targeted programs" can pass through the whole approval process without linkage to funds allocation. Also, a lot of strategic papers, concept papers and similar documents are worked out, again without fiscal impact assessments, even if such an obligation is stipulated by law (Budget Code). As a result of this situation, a lot of the programs approved follow only individual or group interests without linkage to any national level strategy. Additionally, hidden state liabilities appear in the form of approved programs (even by the Verkhovna Rada), which are not funded sufficiently or even at all.

In fact, there are only two tools by which government can affect a market economy – budget and regulation. In general the budget, as a tool of governmental policy, seems to be undervalued in the Ukrainian system. While since 2007 the budget calendar has improved and there is more time for budget preparation, the people and institutions responsible for strategic planning do not care about the funding of the programs suggested. Funding is considered as simple, natural and obligatory, if the programs are politically accepted and approved.

Unfortunately, the reality of a market based economy is different. Therefore, governmental programs must be formulated taking into account their impact on the fiscal stance of the country and the ability of the budget to finance them in a sustainable way.

The middle and top level professional staff is fully aware about these facts. However, top level policy makers, and not only in Ukraine, are able to follow this approach only with difficulty and under the real threat of a financial crisis.

Article 27 of the Budget Code regulates the procedure regarding how to avoid approving draft laws affecting budget revenues and/or expenditures. According to this article, the Budget Committee of the Verkhovna Rada, within a two week period, is obligated to assess an expert opinion about a draft law's influence on the budget. This approach results in several weaknesses:

- The assessment of the influence of draft laws on the budget comes only after submission to Verkhovna Rada, which is too late;
- It is questionable whether the Budget Committee of Verkhovna Rada is equipped enough for such a task, which is sometimes, in the case of more complicated pieces of legislation, quite difficult;

- The procedure according to Article 27 of the Budget Code is limited to draft laws, while there can be other documents affecting the budget, mainly targeted programs, but also amendments to draft budget laws brought up by National Deputies of the Verkhovna Rada.

Recommendation

The following principles should be implemented. First, responsibility for assessing the influence on the budget should lie with the submitter. This means that the ministry or other governmental institution submitting a draft law or other document must submit it together with a so-called fiscal impact assessment.

Second, the Ministry of Finance needs to be responsible for setting up a fiscal impact assessment methodology, its procedure and the training of employees in line ministries and other government agencies on how to create fiscal impact assessments.

Third, the Ministry of Finance must also scrutinize whether or not the fiscal impact assessment worked out by submitter is in line with methodology and procedure, which means that it truthfully expresses the real fiscal impact of a new draft law, strategy, program etc. Without such an affirmation from the Ministry of Finance, no document should be included into the agenda of a Cabinet meeting.

Problem No.3: targeted programs.

The existing mechanism of targeted programs is a special case. In principle, targeted programs are a good tool for coordinating the activities of the state and regional authorities responsible for the targeted program's implementation and for combining public and private sources and interests to fulfill program targets. In existing practice, however, fiscal impact assessments are not required for new targeted programs and as a consequence, a lot of programs are not financed at all or are financed only at an insufficient level.

Recommendation

New targeted programs must be subject to the same fiscal impact assessment procedure as other pieces of legislation and the other documents mentioned above. Those parts of a new targeted program must be incorporated into the budget program structure and approved as a part of the budget. The obligation to go through the fiscal impact assessment procedure should be stipulated by law, either the Budget Code or the Law on Targeted Programs.

To allow the incorporation of the budget part of a targeted program into the budget program structure, the modification of the program budgeting methodology is most likely necessary. Most easily targeted programs can be incorporated into the budget structure as sub-programs (programs of the second or the third level) of inter-ministerial programs. Such programs are usually used to coordinate the effort of several governmental agencies involved in the fulfillment of a particular program. One agency is set as a coordinator, but all agencies are responsible for achieving the program objectives. The program is then incorporated into the program structure of a coordinator at the top level and in the form of a sub-program in the program structures of the other agencies involved. Therefore, the implementation of a two or three level structure for budget programs will be inevitable.

11. Multi – Year Budgeting

11.1 Medium – Term Macroeconomic and Macro-fiscal Framework

A relatively stable medium term macroeconomic forecast (i.e. a macro framework) is always a starting point for a multi-year fiscal framework. Unstable and unreliable forecasts cannot provide a sufficient background for a more or less binding multi-year budget framework.

Problem No.4: instability of macroeconomic forecast.

There are generally three technical reasons behind why a macroeconomic forecast is not reliable:

- *The model or models used inadequately described economic reality*. This situation often happens in transition countries, because the behavior of economic agents has not stabilized, conditions change frequently, structural adaptation is fast and it is difficult to describe it by a model. Econometric models in particular are less stable in transition economies;
- The *assumptions and hypotheses* about exogenous variables, though they are always at the beginning of any work on forecasting, *were not fulfilled*. There are two fundamental areas of exogenous variables:
  - Variables describing the external environment (such as oil prices, exchange rate USD/EUR and so on) and
  - Policy variables (such as fiscal policy parameters, wage development in the public sector….).
- *Statistical time series used are not homogenous* from a methodological point of view in time, or across a set of statistical databases (as often happens in the case of price indices and price deflators).

Recommendation

The development of models for countries in transition is always challenging, due often to a lack of data and almost continuous structural changes, when some processes are not present at all or only in an emerging form as well as institutional differences and therefore some uncertainty concerning the theoretical structure. Therefore, more frequent revisions and re-estimations of models are necessary.

The main macroeconomic model used by the Ministry of Economy is in line with contemporary approaches applied in other countries and from the theoretical point of view is consistent. Even more, the techniques by which Ukrainian specifics are taken into account are quite sophisticated.

The model, however, seems to be quite aggregated. It was developed in 1998 and since that time only a periodical re-estimation has been executed even though fresh statistical data are available. Therefore, it is recommended to check the existing model apparatus with the advice of external experts experienced in statistics and the modeling of economies in transition, with a primary focus on the following issues:

- The consistency of the data used by the model (i.e. how homogeneous are the data used from different sources);
- Ability to disaggregate the model using developments in Ukrainian statistics;
- Modifying the model to better reflect the needs of the Ministry of Finance (medium-term fiscal framework);
- New requirements for Ukrainian statistics to improve the model;
- Necessity to re-build the model to better reflect structural changes in the Ukrainian economy since the model was developed;
- Necessity to re-organize or to re-construct the model to allow its incorporation into one of the systems of global economy models;
- Ability and necessity to build up models in particular areas, i.e. tax revenues, social sphere, important economic sectors of Ukraine etc.;
- Training needs for Ministry of Economy personnel to operate, update and interpret the model properly, training in economic modeling in general.

As for the assumptions and hypotheses lying behind the forecast, two recommendations can be made. As was mentioned before, there are two sets of exogenous variables – policy variables and variables describing the external environment. It is extremely important for forecasters to have good information about intended governmental policies, especially regarding the following:

- Intended price and tariffs policy is of key importance, as approximately 50 per cent of prices in Ukraine are regulated by the government. Without this information it is impossible to predict such a key indicator as inflation;
- Wage policy in the public sector is important to predict a total wage bill in the economy, with macro- as well as micro implications;
- Social policy has similar implications as wage policy;

- Privatization policy, because privatization is an important source of non – tax revenues.

If policy parameters change during the year and the change is significant, this fact influences the initial forecast. Therefore, these assumptions also should be published together with the forecast. Policy parameters, however, must be agreed upon by the Cabinet in advance, before the forecasting cycle starts. *Missing policy parameters when the forecasting process starts or changing them during the year are probably important origins of the low reliability of macroeconomic forecasts.*

Ukraine is an open economy in which the openness has reached the 60 per cent level. Therefore, good knowledge about the world economy, financial markets developments etc. is necessary. Close cooperation with world databases and forecasting centers can also be recommended, to have timely access to the latest forecasts of the world economy. Special attention should be devoted to predictions regarding the economic development of key trade partners, such as the European Union and Russia.

As for statistical data, official Ukrainian statistical data are often examined by international institutions like the IMF and others; the methodology of data collection seems to be in line with ESA 95. Along with that, there is a project supported by the World Bank for improving Ukraine's national statistics. Therefore, statistics do not represent a major concern. Some recommendations, however, can be formulated in this area as well.

From the economic modeling point of view, the origins of the great differences between preliminary and final data, as well as between quarterly and annual values of the same indicators should be investigated first and foremost. There are several possible reasons for this problem ranging from the low quality of primary data coming from statistical units; low discipline of statistical units, so that the statistical sample differs from quarter to quarter; and weak methodology for the gap between the sample and full set of statistical units calculation. Whatever the reason(s), this problem makes life more difficult for people working with models since as they use the freshest data for revising estimates, coefficients of behavioral equations deteriorate and the model becomes less reliable.

During the transition process, national statistics agencies of countries in transition go through wholesale restructurings of their work, adopt new approaches to data collection and calculate indicators which were not calculated before. At the same time, there is a strong reluctance on the part of statistical offices' clients to accept that they can stop collecting data that is useless, used only rarely or is even not used at all. This is usually sectoral micro data, which brings no information for the decision-making process, because the economy was privatized. Therefore, a review of the data which the Statistical Office is obliged to collect is recommended. The Statistical Office should come up with an initiative in this area, and an existing inter-ministerial working group is the best ground for such a discussion.

Problem No.5 political nature of forecasting.

Forecasting in Ukraine is regulated by two pieces of legislation:

- LAW OF UKRAINE On State Forecasting and Elaborating Programs of Economic and Social Development of Ukraine, in connection with,
- Resolution of Cabinet of Ministers of April 26, 2003, No. 621 On the Elaboration of Forecasting and Program Documents for Economic and Social Development and On the Preparation of the Draft State Budget.

The weaknesses of the whole forecasting and programming system were discussed in Part 1 of this concept paper. This part deals with the preparation of macroeconomic forecasts and the multi-year fiscal framework. According to Resolution No.621, "The Ministry of Economy and Ministry of Finance shall provide for the mutually – coordinated elaboration of draft forecasts…., the State program of economic and social development… and a draft State budget." The Ministry of Economy is, however, appointed as the key executor and coordinator of the mentioned document (with exception of the draft State budget). In accordance with this mandate, the Ministry of Economy has built up its own personnel and technical capacities in this regard.

The Ministry of Economy, based on its own knowledge about external environment development and by use of its own methodological apparatus, communicates with the Ministry of Finance and prepares the first forecast, which is discussed with a group of external independent experts and is called a “consensus” forecast. This forecast is worked out four times a year and is published on the web site of the Ministry of Economy.

This forecast is put out for inter-ministerial discussion, and only after approval from all affected ministries and governmental agencies is the forecast submitted for approval by the Cabinet. In this way, the initial forecast is often changed, because the forecasted indicators are not in line with the intentions of a particular agency. Therefore, the *political nature of the forecast in Ukraine* is the fourth possible reason for the low reliability of macroeconomic forecasts.

Forecasting is a highly technical exercise and requests a professional approach. Macroeconomic indicators are interrelated and it is not possible to change individual indicators without changing the whole forecast. And for the same reason, there is no sense in obtaining a political approval of the forecast, because a forecast is not a political document.

Recommendation

The Ministry of Economy should be the only submitter (or together with the Ministry of Finance, as will be discussed later) of the macroeconomic forecast, without the obligation to achieve a broad *approval* by other governmental agencies. The same goes for the Cabinet, which should receive the forecast only for information, not for approval. Behind this recommendation there is of course an expectation that the Ministry of Economy broadly consults with all agencies involved regarding the assumptions and hypotheses lying behind the forecasts, as well as their intended policies in particular areas.

The forecast should be enclosed with the budget documents, but again only for information, and not for approval during the state budget approval process.Each (published) forecast scenario should be accompanied with clearly formulated assumptions lying behind it. The opinion of the **experts group** about the reliability of the forecast also should be accessed publicly, preferably on the Ministry of Economy web site.

Problem No.6: weak linkage between the macroeconomic forecast and the macro-fiscal framework, or medium – term macroeconomic and medium – term fiscal framework.

In fact, the key reason why the macroeconomic forecast is worked out by state institutions or agencies is its importance for the macro-fiscal framework. The preparation of both is in practice the same task and an iterative process; therefore, for both the macroeconomic forecast and its fiscal framework the same institution is responsible – logically the **Ministry of Finance** (or a governmental agency with similar responsibilities). In the case of Ukraine, these tasks are split between the Ministry of Economy (responsible for the macroeconomic forecast) and the Ministry of Finance (responsible for the macro-fiscal framework and budget). It also seems that there is no common agreement and common understanding regarding which indicators should be estimated by which agency and when, in spite of the fact that both agencies communicate with each other.

Recommendation

Work on the macroeconomic forecast and macro-fiscal framework cannot be split and separate. To ensure full compatibility and a homogeneous forecast and framework, both teams should work very closely together on a daily basis, should understand the task and methodology of the other side and the interrelations between the two tasks. To ensure that, the Ministry of Economy should not be the sole submitter of the macroeconomic forecast, but should do it together with the Ministry of Finance. Besides that, the forecast and the framework can be submitted at the same time.

Communication between the two institutions seems to be a real weak point. The Ministry of Finance participates in discussions about a “consensus” forecast and three times a year about basic macroeconomic indicators. This is not enough, however, to develop a reliable macro-fiscal framework, at least for the medium-term.

The Ministry of Finance is trying to build its own methodological apparatus and for this purpose is building up its own personnel capacities. This effort is understandable, because the Ministry of Finance also needs a formalized apparatus in areas which are not usually covered by the macroeconomic model. In this area, i.e. the development and use of the macroeconomic model, a joint effort is recommended.

The extension of the review of the models used for macroeconomic forecasting done by an external advisor, as recommended already, also based on methodological tools for macro-fiscal framework development, could help to improve both tasks. Part of this review should be devoted to tools for budget revenue estimation, where the Ministry of Finance feels a weak point.

11.2 Medium – Term Budget Framework

Budgeting in Ukraine is more or less a bottom-up budgeting, under which spending units prepare their budget request, and key spending units organize the collection and submission to the Ministry of Finance. The key difference between top-down and bottom-up budgeting consists of the:

- Existence of ceilings (limits) for key spending units, which are known before the discussion about budget appropriations starts, and
- Transfer of responsibility for the quality and content of budget requests on key spending units.

In fact, the second task is incorporated into Ukrainian budget law (Article 35). Therefore, the implementation of top-down budgeting requires establishing a procedure of setting up key spending units' ceilings.

Recommendation

Splitting the budgetary process into two parts – the preparation of a "budget envelope" – ceilings for key spending units, and the preparation of the budget as the second part, is necessary. The Ministry of Finance does that already and distributes limits among key spending units. These limits are not, however, approved by either the Cabinet or by the Verkhovna Rada. The "budget envelope" can be a part of the Guidelines for Budget Policy, a document which the Cabinet is obliged, according to the Budget Code, to submit to Parliament, or any other document with relevant political significance[4]. This document should become an important part of the documents hierarchy according to the recommendations related to problem No.1.

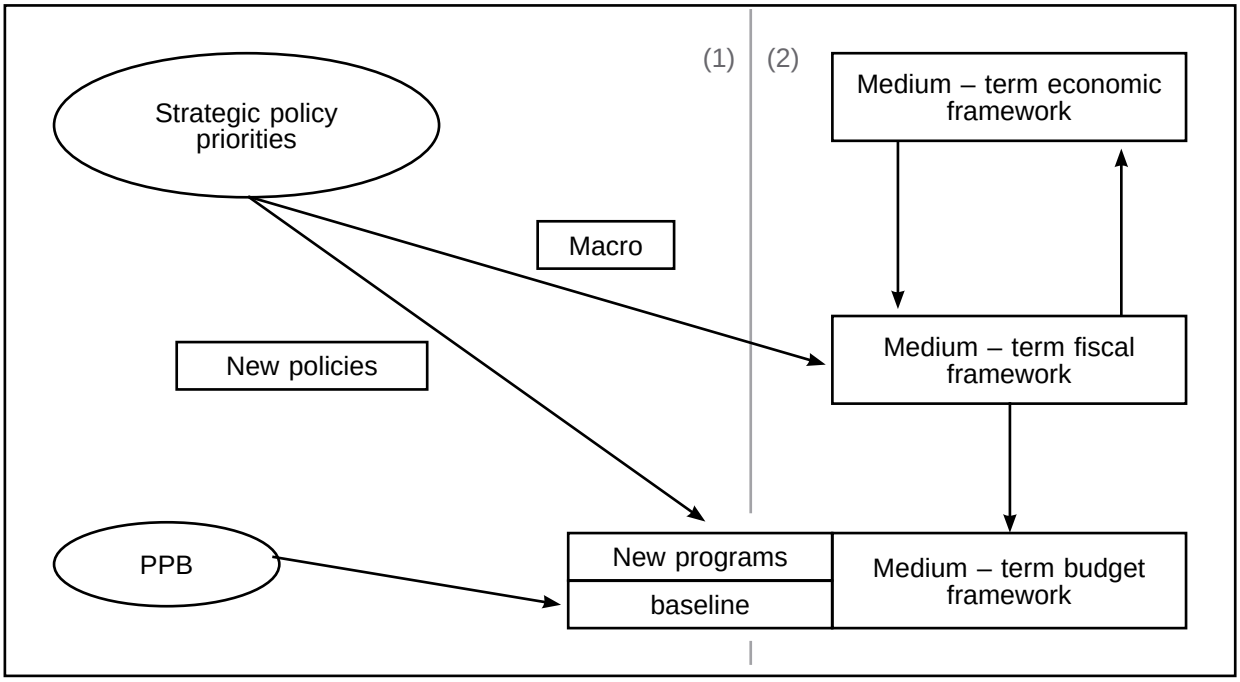
The second option is to leave key spending units' ceilings for approval only by the Cabinet. This option leaves more time for the Ministry of Finance and key spending units to discuss the ceilings proposal. However, due to the quite strong role of the Verkhovna Rada in the budgetary process, as was mentioned already, approval by the Verkhovna Rada is preferable. An additional win in this case is that during the second stage of the budget approval – autumn – the Verkhovna Rada should not come up with changes to budget proposals and thus break its own decision about ceilings.

Key spending units' ceilings must be set up for the next and following two years. However, flexibility in budgeting must be kept. Therefore, rules on how, why and when ceilings can be adjusted should be stipulated by law. There are several approaches regarding how to set up a ceiling for key spending units. The simplest is to increase the previous ceiling by inflation or keep it at the same level (pressure to increase efficiency in public spending). Most countries, however, use a baseline budget as a background for key spending units' ceilings. A baseline budget represents those expenditures of key spending units which are "pre-allocated" by previous decisions (laws, bylaws, contracts, international agreements etc.).

An effort to move towards a medium-term budget framework is evident at the Ministry of Finance. The methodology, however, is not developed yet. Also, the lack of communication between the Section for Macroeconomic Analysis and Strategy and the Budget Section should be improved, with a clear delineation of responsibilities between them. In addition, progress towards a medium-term budget framework will require the improvement of the software tools used for budgeting.

4 *Possible content for such a document can be found in Annex II.*

ANNEX I


(1)
(2)
Strategic policy priorities
Medium – term economic framework
Macro
New policies
Medium – term fiscal framework
PPB
New programs
baseline
Medium – term budget framework

ANNEX II

POSSIBLE CONTENT OF A PRE-BUDGET DOCUMENT

1) Assessment of fulfillment through the current period of long- or medium- term governmental policies and tasks following from them for the budgeted year.

2) Macroeconomic forecast:
   a) Macroeconomic development during the previous year;
   b) Description of assumptions underlying the forecast:
      i) External environment;
      ii) Policy parameters (price policy, public sector wage policy);
   c) Macroeconomic parameters for the medium-term (GDP growth total and break down according to components, inflation, real wages, households consumption, public expenditures on goods and services, gross fix capital formation,employment and unemployment, foreign trade, current account, interest rates, exchange rate etc,).

3) Medium-term fiscal framework:
   a) Key macro-fiscal parameters;

Total budget revenues and expenditures, together with the planned deficit, public debt, debt service. Identification of potential risks. Formulation of medium-term objectives on the expenditure side, which are in line with a revenue and planned deficit forecast. Breakdown of expenditures according to expenditure commitments following from existing and approved governmental policies.

   b) Medium-term revenues forecast;

Analysis of previous tax collection. Tax and insurance revenues broken down according to individual taxes, taking into account intended changes in tax legislation. Non-tax revenues. Grants and transfers. Total revenue. Risk analysis. Decomposition of revenues on key spending units

   c) A medium-term expenditure framework that contains more detailed forecasts of expenditures according to:
      i) economic classification (wages, current expenditures and capital expenditures);
      ii) big key spending areas such as social allowances, social and health insurance paid by the state for children and pensioners, subsidies for house construction, subsidies for public transport, agricultural subsidies, overall transfer to local authorities, local education, high schools, healthcare, defense, public security;
      iii) key spending unit expenditure ceilings (revenue total, expenditure total, wage bill).

INTRODUCTION TO MACROECONOMIC MODELLING

The first chapter of this section discusses EU Budget and Usage of Macroeconomic Modelling as an example of budgetary policy which is important for realizing the aims of authorities with executive power. This study is focused on the structure of the EU budget from a revenue and expenditure point of view as well, including the short- and mid-term planning approaches used with respect to the EU's needs along with those of each EU Member State, and which is achieved by general consensus. The last part of this work concerns the prognoses used during budget preparation that are used in financial planning.

The second chapter concentrates on short-run modelling in the Slovak Republic. For this purpose the Mundell – Fleming (further called "MF") model is presented as an apparatus for analyzing the effectiveness of monetary policy. The Slovak Republic is a very good example for Ukraine, because it has passed through the transformation process after the breakdown of the Czechoslovak Republic in 1993, which poised the Slovak economy for a transitive position with accession and European Union- orientated efforts.The MF model described in this part is an extension of the IS – LM model by incorporating foreign trade relations, expressing equilibrium on capital (Investments and Savings "IS") and the money (Liquidity and Money "LM") market. Based on the time series and parameters, an estimation can be given to the character of monetary and fiscal policy. The transition of the Slovak economy can be

divided into three time periods, mentioned in detail in this chapter, that are characteristic of the different fiscal, monetary, and economic policies applied. An essential part of the MF model is its quantitative analysis, which describes the effectiveness of the policies related to GDP growth. It is obvious and reasonable that this type of analysis shows the gradual standardization of economic processes during Slovakia's transition period.

The third section, on the other hand, is focused on an econometric long-run model dealing with aging, health and determination of health expenditures. A long-run prognosis compares income and expenditures on the health care system and determines its sustainability. The Slovak Republic passed through a transformation process that left negative effects on this system. Moreover, hand in hand with recession, both negative demographic trends and decreased birth rates induced consequences influencing the health system and the pension system as well. The values of deficits in income and expenditures are analyzed with a basic scenario and alternative optimistic/pessimistic scenarios under particular conditions. The situation in Ukraine seems to have a character resembling the Slovak Republic's problem with both an aging health care system and labor market, and therefore it is necessary to set up arrangements to avoid or reduce the problem of deficits and un-sustainability. Basic policy recommendations are discussed in the last part of this chapter.

The fourth part is dedicated to the macroeconomic CGE (Computable General Equilibrium) model and the simulation of price and supply shocks on an economy. This study was motivated by a hypothetical problem, which could arise with import price changes and supply disturbances especially in the energy sector in the Slovak economy, and how they influence each economic indicator in the model. Through determining non-marginal changes, the size of the impact on main macroeconomic indicators as unemployment, inflation and GDP growth can be then analysed. The main advantage of this model is that the database collects data for one year, so it avoids the lack of a long, consistent time series. CGE models are relatively new type of models covering relations among subjects (producers, consumers, government) on the market and foreign trade. They enable the research of fiscal policies as well; therefore we strongly recommend them as a modelling apparatus which supplements econometric models.

The last chapter introduces a Mundell – Fleming model for the Ukrainian economy in the version discussed in the second chapter. This study emerges from the Slovak MF model, which was developed in order to quantitatively and qualitatively analyse the effectiveness of monetary and fiscal policies through the transformation process. Ukraine, as with the Slovak Republic, converted from centrally planned control to market principals; therefore this model is a proper apparatus revealing the character of the economy. Furthermore, we can observe from the estimated parameters significant influences on GDP growth and deduce recommendations regarding inefficient monetary or fiscal policy.

EU BUDGET AND THE USE OF MACROECONOMIC MODELLING

Viliam PÁLENÍK, Tomáš DOMONKOŠ

Introduction

The EU budget is a financial instrument that is essential for the realization of the goals of the European Community and the functioning of its institutions. Each Member State contributes to the common budget and receives money from it as well. Consequently, we consider it important to be familiar with the structure and the manner of creating the EU budget.

The purpose of this study is to outline the structure of the EU budget and the method by which it is created. We will also indicate the quantitative model instruments used for prognoses during the preparation of the financial framework and the annual budget.

In this work, we give a brief characterization of the financial framework and the annual budget, their structure and the process of their preparation and approval. Furthermore, we present the characteristics of the models created in order to generate the prognoses used in the preparation of the EU budget.

1.1 The Preparation of the EU Budget in Brief

The preparation of the EU budget is a process in which the following institutions are involved: the European Commission, the Council of the EU and the European Parliament. The General Budget of the European Community is adopted for a one-year period. The European Commission each year prepares a Preliminary Draft Budget (PDB) with respect to the boundaries set out in the current financial perspective of the EU. The draft is submitted to the budgetary authorities, which are entitled to modify it and approve it. The Financial Framework of the EU is a multi-annual financial perspective outlining the administrative expenditures of each EU institution and the expenditures related to the realization of common EU policies. The Financial Framework is submitted by the European Commission to the Council of the EU and to the European Parliament. These institutions modify and adopt the draft financial framework.

1.2 The Financial Framework of the EU

The Financial Perspective or the Financial Framework[5] represents a multi-annual budgetary plan proposed by the European Commission. This document defines the administrative expenditures of the EU institutions and the expenditures related to the realization of common policies. The annual EU budgets are based on the Financial Framework currently in force. This framework sets out the upper limit of what are called commitment appropriations for annual budgets and for their headings. It also determines the limit of total payments and commitment appropriations for a given year. The financial planning represented by a multi-annual budgetary plan was first used in its present-day form in 1988[6]. This approach was introduced in order to achieve a more rigid budgetary discipline as well as to improve the budgetary procedure and inter-institutional co-operation. The financial framework is currently planned for seven consecutive years[7]. The present framework is the fourth one and is relevant to the 2007-2013 period. The EU budget for the period mentioned was adopted in May 2006.

The adoption process is carried out by the European Commission (EC), the Council of the EU (CE) and the European Parliament (EP) and takes into account the opinion of the European Economic and

5 In place of the expression "Financial Perspective" the expression "Multi-annual Financial Framework" is now gaining in popularity.

6 Since 1988, four Financial Perspectives have been adopted: 1988-1992 the Delors Pack I; 1993-1999 Delors Pack I; 2000-2006 Agenda 2000; Financial Framework 2007-2013.

7 The first financial perspective was planned for a five-year period. The following ones, however, were for seven years. At present, the return to the five-year period is being considered, which would copy the five-year mandates of the EP and EC.

Social Committee (EESC). The preliminary draft of the Financial Framework of the EU (the document outlining the main questions of the following discussions about the Financial Perspective) is elaborated by the EC and submitted to the Council and to the EP, which have the biggest say in the discussion about future EU budgets[8]. The Council, in close cooperation with the EP, modifies and reviews the draft. First, the preliminary draft is adopted by the Council and then by the EP. The Financial Framework of the EU is created as a result of political agreements and is expressed as a percentage of EU GNI. It is important to mention that the budget is not automatically derived from the GNI. It is only expressed as a percentage of GNI (letter from: European Commission, Directorate-General for Budget, Directorate B – Own Resources, evaluation and financial programming, B1- Multi-annual financial framework; funding systems and forecasts; budgetary aspects of enlargement). The mid-term prognosis of the EU GNI for the years 2007-2013 is generated by the Directorate General for Economic and Financial Affairs (DG ECFIN). DG ECFIN is the body responsible for publishing the various economic analyses and prognoses used for preparing the EU budget.

The upper limits of the expenditures in the Financial Framework are set out after taking into account considerations such as political agreements. In this vein, the limits for agricultural expenditures were politically fixed in October 2002 by the EC (the so-called Brussels ceiling).

Financial Framework 2007-2013 (EUR million 2004 prices)								
Commitment appropriations	2007	2008	2009	2010	2011	2012	2013	Total 2007-2013
1. Sustainable Growth 1a Competivenss for Growth and Employment 1b Cohesion for Growth and Employment	51 267 8 404 42 863	52 415 9 097 43 318	53 616 9 754 43 862	54 294 10 434 43 860	55 368 11 295 44 073	56 876 12 153 44 723	58 303 12 961 45 342	382 139 74 098 308 041
2. Preservation and Menagment of Natural Resources of which: market related expenditure and direct payments	54 985 43 120	54 322 42 697	53 666 42 279	53 035 41 864	52 400 41 453	51 775 41 047	51 161 40 645	371 344 293 105
3. Citizenship, freedom, security and justice 3a. Freedom, Security and Justice 3b. Citizenship	1 199 600 599	1 258 690 568	1 380 790 590	1 503 910 593	1 645 1 050 595	1 797 1 200 597	1 988 1 390 598	10 770 6 630 4 140
4. EU as a global player	6 199	6 469	6 739	7 009	7 339	7 679	8 028	49 463
5. Administration (1)	6 633	6 818	6 973	7 111	7 255	7 400	7 610	49 800
6. Compensations	419	191	190					800
Total commitment appropriations as a percentage of GNI	120 702 1,10%	121 473 1,08%	122 564 1,07%	122 952 1,04%	124 007 1,03%	125 527 1,02%	127 091 1,01%	864 316 1,05%
Total payment appropriations as a percentage of GNI	116 650 1,06%	119 620 1,06%	111 990 0,97%	118 280 1,00%	115 860 0,96%	119 410 0,97%	118 970 0,94%	820 780 1,00%
Margin available Own Resources Ceiling as a percentage of GNI	0,18% 1,24%	0,18% 1,24%	0,27% 1,24%	0,24% 1,24%	0,28% 1,24	0,27% 1,24%	0,30% 1,24%	0,24% 1,24%
(1) The expenditure on pensions included under the ceiling for this heading is calculated net of the staff contributions to the relevant scheme, within the limit of EUR 500 million at 2004 prices for the period 2007-2013								
Source: (2006/C 139/01) Interinstional Agereement from 2006, Annex 1								

Each heading of the Financial Perspective represents a main political priority of the EU. Some of the headings are further divided into sub-headings all of which have upper limits set for the commitment appropriations in relation to the payment appropriations. Moreover the total annual expenditures are divided into commitment appropriations and payment appropriations, all expressed in 2004 prices. This division created a less abrupt structure than that of Agenda 2000[9]. In addition, the administrative expenditures of the EC are directly included under the corresponding heading, which makes the Financial Perspective compatible with the requirements of Activity Based Management[10], which creates the basis for the process of adopting the budget. One of the main purposes of the Financial Perspective is to ensure that middle-term expenditures are within the boundaries fixed for own resources. The upper limit for own resources is given as a percentage of EU GNI and is fixed at 1.24%. In the actual Financial Framework 2007-2013 the average level of total payment appropriations is 1% of the EU GNI.

8 *First communication – COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT, Building our common Future: Policy challenges and Budgetary means of the Enlarged Union 2007-2013 (COM(2004) 101 final/2).*
Second communication – COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT, Financial Perspectives 2007-2013 (COM(2004) 487 final).

9 *Agenda 2000 is a financial perspective for the period between 2000 and 2006 adopted in March 1999 in Berlin. It consists of eight main headings, while some of them were further divided into sub-headings. Each heading outlined the corresponding upper limits for annual budgets. See INTERINSTITUTIONAL AGREEMENT of May 6, 1999 among the European Parliament, the Council and the Commission on budgetary discipline and improvement of the budgetary procedure (1999/C 172/01), Annex I. and II.*

10 *In order to ensure transparency, the EU budget is divided into 31 political areas. These areas are further divided so as to show how the activities under the particular headings are financed.*

The Financial Perspective is annually amended by the EC according to current economic growth and inflation rates. This procedure is needed because, for example, the framework is adopted using the previous year's prices. The financial framework for years 2007-2013 was adopted in 2004 prices. The rules of amending the budget are defined by the document 'Inter-institutional Agreement between the European Parliament, the Council and the Commission on budgetary discipline and sound financial management' (IIA), Part 1, (2006/C 139/01). This document was adopted in June 2006 and applies to the EU Financial Framework 2007-2013 and to the annual budgets prepared in this period. The document came into force on January 1, 2007. The main goal of the agreement is to introduce better financial discipline, improve the functioning of the annual budgetary procedure and cooperation between institutions on budgetary matters as well as to ensure sound financial management. Besides the annual technical adjustments, the IIA mentioned also outlines the execution of the revision of the Financial Framework proposed by the Commission in cases of unforeseen events in accord with the ceiling for own resources.

If new states join the EU in the period in which the Financial Framework is in force, the EC and the EP may change the Financial Framework so that it reflects the expenditures resulting from the outcome of the accession negotiations. Before the EU enlargement in 2004, DG ECFIN published a number of documents containing prognoses of economic development in the candidate states as well as the document titled 'The impact of enlargement' (II/419/01-EN) in June 2001. This document contains an analysis for the period from 2000-2009 and it focuses mainly on the economic aspects of the enlargement. The purpose of this analysis is to assess the impact of the enlargement on the EU as a whole and on each member state. The analysis deals with a ten-year period and generates several possible scenarios of economic development in the countries mentioned. The study uses a modified neo-classical growth model originally proposed by R. Solow (1956). If the financial authorities do not agree on the following Financial Perspective and unless the existing Financial Framework is expressly terminated by one of the institutions, it will remain in force for one more year and the ceilings for the last year covered by the present Financial Framework will by adjusted in accordance with the technical adjustment rules so that ceilings are expressed in the price level of the latest year of the period under consideration.

1.3 The EU Annual Budget

The annual EU budget is a financial instrument that is created in order to help realize the goals and the activities of the EU. It fixes its revenues and expenditures and all the activities that will be financed including the amount of money and staff involved in these activities. Furthermore, it contains legal documents on the grounds of which the funding of these activities is approved[11]. The EU budget covers one fiscal year starting on January 1 and finishing on December 31 of each year. It is the result of complicated preparatory procedures.

1.3.1 The Structure of the EU Budget

The community budget is based on:

- the principles of budgetary unity and accuracy;
- the principles of universality;
- the principles of annuality;
- the principles of equilibrium;
- the principles of unit of account;
- the principles of sound financial management;
- the principles of specification and transparency.

Unity, as defined in article 268 of the TEC, means that all community revenues and expenditures are listed in a single document.

Universality means that all expenditures and revenues are entered in full without any adjustment against each other. This, in fact, means that community revenues are not assigned to specific items of expenditure.

The principle of annuality means that budgetary operations are only authorized for a specific financial year beginning on January 1 and finishing on December 31 in the given year. This could, however,

11 Regulations generally proposed by the EC and approved by the Council of Ministers and Parliament are primary conditions for implementing EU policies.

pose certain problems for operations which are carried out during a longer period (e.g. multi-annual projects). To avoid this, the budget foresees so-called differentiated appropriations, which means, that a specific item of expenditure has two distinct figures, namely commitment appropriations (CA) and payment appropriations (PA).

- CAs are 'virtual money' assigned to cover expenditures contracted during a financial year;
- PAs are the financial resources which cover actual costs incurred in order to meet the legal obligations contracted either during the current financial year or in previous fiscal years.

CAs and PAs only rarely coincide; the PA amount is dependent on the current stage of specific projects. Some of the financial appropriations are not differentiated, which means that CAs = PAs. Under certain conditions it is possible to carry over some of the financial appropriations from one year to another.

The principle of the equilibrium of the budget means that the revenue and expenditure sides are always equal. No borrowing shall be authorized to cover a budget deficit.

The principle of the unit of account ensures that the budget is drawn up, implemented and presented in Euro.

The principle of sound financial management is defined with respect to principles of economy, efficiency and effectiveness.

The principle of transparency helps ensure that the budget is prepared in a straightforward way and gives relevant information about the implementation of the budget and the accounts.

The EU budget is divided into two parts, namely 'General Statement of Revenue' and the Community's various own resources[12].

Revenue

The revenue side of the community budget is mainly represented by own resources, which are used for covering its expenditure. These appropriations come from the transmission of a certain part of taxes and other payments collected by Member States[13]. There are three distinctive types of own resources[14]:

- Traditional Own Resources (TOR) resulting from customs duties charged on imported products from non-member states;
- Resources based on VAT, which are given as a uniform percentage applied to the harmonized VAT revenues of each national government. The amount of money on which the percentage is calculated is given as the ratio between net VAT revenues and the average VAT rate. The VAT base cannot exceed 50% of the Member States' GNI[15];
- Resources based on the average GNI of the Member States – a uniform percentage of the GNI is paid each year. Resources based on GNI are used as a balancing item, which serves to cover expenditures that other revenues cannot cover. The maximum amount of this type of resource cannot exceed 1.24% of the Member States' GNI. At present, it represents the single biggest part of budget revenues. The decision upon the community's own resources lies with the Council which should also take into account the results of its negotiations with the EP (Art. 269 TEC)[16].

Besides the revenues already mentioned, the budget also receives other revenues provided by taxes paid by EU staff on their salaries, contributions from non-EU countries and fines on companies which have breached competition laws or other regulations. The following pie chart shows the structure of revenues for the 2007 EU budget.

12 See 'Final Adoption of the general budget of the European Union for the financial year 2007' – Official Journal L 77 of 16/03/2007 – http://ec.europa.eu/budget/publications/budget_en.htm

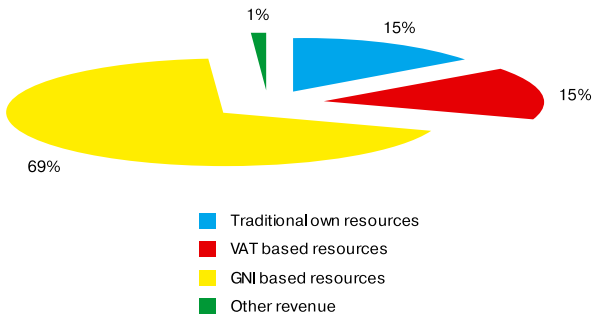
13 (EC, Euratom) No 1150/2000 as amended by Regulation (EC, Euratom) No 2028/2004

14 The basic rules related to the System of Own Resources are set in COUNCIL DECISION ofJune 7, 2007 on the system of the European Communities' own resources (2007/436/EC, Euratom).

15 Resources based on VAT are regulated by COUNCIL REGULATION (EEC, EURATOM) No 1553/89.

16 Resources based on GNI are regulated by COUNCIL REGULATION (EC, EURATOM) No 1287/2003.

Structure of estimated budget revenues for 2007



Source: European Commission, Directorate General for Financial Programming and Budget

Budget revenue is expected to reach EUR 116.4 billion, while the total funds committed to different policies are slightly higher. This results from the fact that the EC commits the total amount of money required to cover a multi-year project in the first year of the project. However, the actual payments are made in several instalments during the project's realization.

The Member States make their contribution to the community budget with respect to their current economic situation, but some of them are given an advantage[17]. At present, benefits are given to the UK, Germany, the Netherlands, Sweden and Austria. Over 2007-2013, the percentage applied to VAT-based contributions will be lowered for Germany, the Netherlands, Sweden and Austria and the Netherlands and Sweden will also benefit from lower annual contributions based on GNI. This was concluded on December 15-16, 2005.

Furthermore, the Council concluded that the correction mechanism in favor of the UK (also known as the UK rebate) remains in force. But after a gradual phasing-in period between 2009 and 2011 the United Kingdom shall participate fully in the financing of the costs of enlargement, except for agricultural direct payments and market-related expenditure, and that part of rural development expenditure originating from the European Agricultural Guidance and Guarantee Fund (EAGGF), Guarantee Section [2007/436/EC, Euratom]. The UK rebate was negotiated in 1988 by then-prime minister Margaret Thatcher. The correction aims to balance the difference between the level of contributions made by the UK and the resources allocated in the UK. This correction represents approximately EUR 5.3 billion for 2007.

The costs related to the correction are borne by the other 26 Member States. The distribution of the financial burden is first calculated on the basis of each country's share in total EU GNI, while the share of Germany, the Netherlands, Austria and Sweden is restricted to 25 percent of its normal value. This special allowance is financed by the remaining 22 Member States.

Expenditure

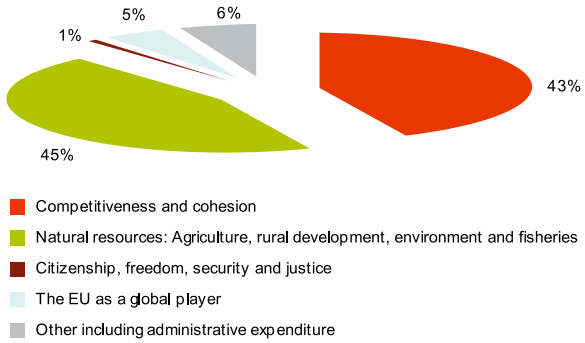
Every citizen of the EU, directly or indirectly, enjoys benefits arising from activities financed by the Union. The projects and activities funded by the community budget reflect the present priorities of the European Community. The priorities are expressed in the budget via its headings, which are further divided into sub-headings. At present, the EU budget consists of the following headings:

- Competitiveness and cohesion;
- Natural resources;
- Citizenship, freedom, security and justice;
- The EU as a global player;
- Other including administrative expenditure.

17 *The regulation of the Council on measures concerning budget deficit correction KOM(2004) 501 and the Commission's working document on calculation, financing, payment and entry in the budget of the correction of budgetary imbalances in favour of the United Kingdom 2006/0039(CNS).*

These areas were defined on the grounds of agreements between Member States in order to achieve greater efficiency.

Spending categories ('headings') of EU budget in 2007



Source: European Commission, Directorate General for Financial Programming and Budget

Competitiveness and cohesion deals mainly with economic growth and job creation. The economy of the EU should become more competitive and less prosperous regions need to catch up with more developed ones. Between 2007 and 2013, seven eurocents out of every Euro spent by the Union will be used for activities related to this heading.

Achieving sustainable economic growth is contingent upon making good use of the EU's growth potential (known as Cohesion). The cohesion process demands that financial help be allocated to less developed regions so that their economies can face global competition. Out of every Euro spent in the budget, 36 eurocents shall go to such activities. Cohesion funds were created in the early 1990s as specific solidarity funds. Their purpose was to provide help to the four least developed countries of the EU (then Greece, Ireland, Spain and Portugal). At present, Member States with a GDP per capita less than 90% of the average EU GDP per capita are entitled to draw cohesion funds[18]. For 2007-2013 EUR 69.7 billion are approved for these funds, which shall be used to cover investments and infrastructures in every Member State, particularly in the domain of trans-European transport networks and environmental protection in accord with the political priorities of the Community.

The heading 'Natural Resources' was created with the aim of promoting the production of those agricultural products that correspond with consumers' wants and needs including high quality and safety. It should also ensure that farmers use environment-friendly production methods and do not overproduce. 45% of the EU budget is used to fund projects related to these challenges.

The citizenship, freedom, security and justice policy is much more efficient if implemented at the Community level. This field consists of activities such as counter-terrorism policy and the fight against organized crime and illegal migration. One eurocent out of each Euro in the budget is provided to fund such activities.

The EU as a global player – the activities of the EU do not end at its borders. The Union provides help to other countries as well. It also provides long-term aid focused on prosperity, stability and security. It supports candidate states but also helps underdeveloped regions in the entire world. Five eurocents out of each Euro in the budget are used for such activities.

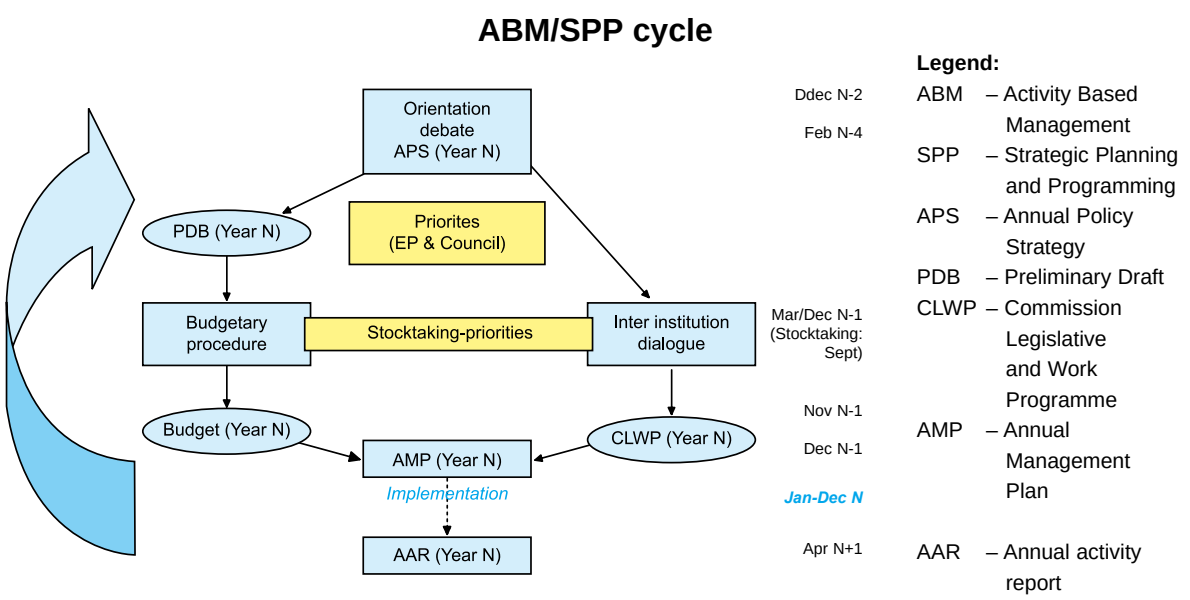
Moreover, six eurocents out of each Euro are spent on EU administration. This covers costs related to running the Union as such including maintaining its offices.

The EU budget expenditure for 2007 is estimated at EUR 126.5 billion.

18 *At present, Slovakia reaches 60% of the average EU GNI. Thus, the Slovak Republic is entitled to draw cohesion funds. For the period covering 2007-2013 a total of EUR 3.9 billion will be allocated in the Slovak Republic via these funds.*

1.3.2 The Budget Procedure

The process of adopting the budget begins by September 1 in the year preceding the implementation of the budget. The preparations, however, begin much earlier[19].



Source: European Commission, Directorate General for Financial Programming and Budget

The preparation of the PDB is carried out by the EC under the limitations set in the Financial Perspective, the budgetary guidelines and the political strategy for the following year[20]. The draft contains revenue and expenditure estimations. The PDB is generally presented to the CE and the EP in April or May. The process of adopting the PDB are set in the voting rules laid down in the fifth subparagraph of Article 272 of the TEC[21]. The budgetary authorities amend and adopt the draft in the following way:

- the CE adopts the PDB with a qualified majority and then presents it to the EP;
- on the first reading, Parliament may vote, by a majority of the votes cast, for proposed modifications to compulsory expenditures and, by an absolute majority, for amendments to non-compulsory expenditures [www.europarl.europa.eu];
- on the second reading, the Council of the European Union adopts compulsory expenditures and can modify non-compulsory expenditures. The draft is returned to Parliament, which adopts the non-compulsory expenditure [EP];
- the EP adopts the budget[22].

The European Parliament may also reject the budget by an absolute majority and three-fifths of the votes cast. In this case, the budget procedure must begin once again on the basis of a new draft. Until the new budget is adopted, the Community works on the basis of monthly financial appropriations that amount to one twelfth of the previous budget. These payments are known as provisional twelfths. If Parliament decides to adopt the budget, the President of Parliament declares the budget finally adopted.

19 *See for example http://ec.europa.eu/budget/library/budget_detail/budgetary_procedure_en.pdf*

20 *The Commission presents a preliminary draft budget to the Council, taking into account the guidelines laid down by Parliament and the Council, at a three-way discussion on budget priorities and an ad hoc conciliation procedure on compulsory expenditure. The PDB may later be modified by the Commission by a letter of amendment to take account of new aspects.*

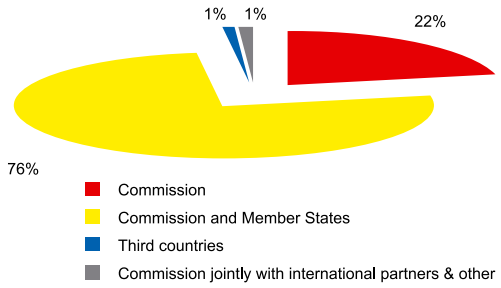
21 *The Council will act by a qualified majority and the European Parliament by a majority of its members and three fifths of the votes cast [IIA – 2006/C 139/01].*

22 *The final version of the budget is adopted by the President of the EP.*

1.3.3 Budget Management and Supervision

The responsibility for managing the budget lies with the EC. The Commission controls 22% of all financial appropriations and approximately 76% of the appropriations are jointly controlled by the authorities in the Member States and the EC. In addition, the Commission is liable for recovering payments unduly paid. In order to prevent misuse of the common financial appropriations the Commission, the national authorities and the European Anti-Fraud Office (OLAF) cooperate in creating 'fraud-proof' EU legislation.

How the EU funds are managed



Source: European Commission, Directorate General for Financial Programming and Budget

The rules regulating budgetary operations are contained in the Financial Regulation[23]. The implementation of the annual budget is supervised by the Court of Auditors which also publishes its annual report. The Council of the EU reviews the Court of Auditors' report and submits recommendations to the EP. Parliament may grant a discharge if it is satisfied with the annual report. The discharge contains certain recommendations that will improve the implementation of future budgets. The refusal to grant a discharge is equal to a motion of censure.

1.4 Prognoses Used During Budget Preparation

The EC in its first communication to the CE and the EP introduces the preliminary draft financial perspective which contains proposals concerning the ceilings for expenditures and, in the meantime, substantiates the decisions of the European Committee. The headings included in this perspective and the expenditure ceilings laid out in these headings reflect recent political priorities and goals. The actual financial perspective of the European Union results from political negotiations and agreements. These figures are expressed in absolute numbers and as a percentage of EU GNI.

During the annual budget preparations, the ceilings set out in the financial perspective are used as a starting point, while the financial perspective is adjusted with respect to the present economic situation with an emphasis on the current inflation rate and the economic growth rate. The adjustment is exercised so as to have the Financial Framework expressed in current-year prices (year n+1). Subsequently, the ceilings, once laid down, are again reviewed and the margins available under the own resources ceiling are calculated. The results of those technical adjustments and the underlying economic forecasts will be communicated to the two arms of the budgetary authority. The commission carries out the technical adjustments on the basis of a fixed annual deflator of 2 per cent. These adjustments are based upon the prognoses generated by DG ECFIN, DG AGRI and the Member States.

The estimation of the chosen TOR, VAT-based resources and GNI-based resources are negotiated and approved by the Advisory Committee on Own Resources (ACOR). During the preparations of the prognoses the Advisory Committee follows the EC methodology, but the list of the chosen

23 OJ L 25 of 30/01/2003 (1605/2002) amended by Council Regulation (EC, Euratom) No 1995/2006 of 13/12/2006, OJ L 390 of 30/12/2006

TOR is a compromise between forecasts made by the Commission and forecasts made by Member States. According to established practice the Commission proposes to revise the financing of the budget on the basis of more recent economic forecasts generally adopted at a meeting of the ACOR. The revision concerns the forecast of TOR to be paid to the budget in the following year as well as the forecast of the following year‘s VAT and GNI bases. The use of an updated forecast of own resources improves the accuracy of the contributions that Member States are asked to make during the budgetary year. It also reduces the forecasting errors from the previous year.

- The forecasts on agricultural duties and sugar levies are provided by DG AGRI. DG AGRI also creates a detailed forecast broken down by Member State concerning sugar levies;
- The forecasts of the net customs duties are generated on a Member State basis, using DG ECFIN forecast growth rates of extra EU imports as published in the economic forecasts;
- For each Member State, the VAT base is forecast by the application to the latest statement of the VAT base communicated to the Commission and the weighted average forecast growth rates of a representative aggregate consisting of private final consumption expenditure, general government net purchases of goods and services and general government gross fixed capital formation [9];
- The GNIs of Member States are estimated on the basis of the last assessment of GNI communicated to the Commission and the expected GNI growth rate;
- The forecasts must also take into account the costs arising from benefits related to Germany, Austria, Sweden, the Netherlands and the UK described in chapter 3.1.

DG ECFIN produces short-term fully-fledged economic forecasts in the autumn and in the spring of each year. These forecasts deal with the key indicators of the macroeconomic development of the EU as a whole, the Member states, the Candidate countries, the euro area and the international environment.

During the preparation of the PDB the European Commission takes into account the forecasts related to the Structural Funds communicated by the Member States. The analyses concerning cohesion are also created by DG ECFIN, for example ‘The Potential Impact of the Fiscal Transfers under the EU Cohesion Policy Programme’ Economic Paper Number 283 – June 2007. This paper provides a model-based analysis of the potential macroeconomic incidence of fiscal transfers between the Member States as planned under the Cohesion Policy programs 2007-2013. The simulations show the costs and benefits of Structural Funds spending on beneficiary and donor countries in the EU. The model used for this impact analysis is the QUEST II macroeconomic model provided by DG ECFIN. It is an extended version which includes detailed sub-models for the 10 new member states that joined the EU in 2004.

In September 2002, DG ECFIN published the document ‘Production function approach to calculating potential growth and output gaps – estimates for the EU Member States and the US, No 176 – September 2002’ and subsequently the document ‘Calculating potential growth rates and output gaps – A revised production function approach – No 247 March 2006’ in March 2006 which focus on the estimation of potential growth rates based on production functions. The model used in the document is founded on a Cobb-Douglas-type production function, while focusing on short- and mid-term periods. The economic approach was preferred to the statistical approach as it gives the ability to identify macroeconomic factors determining potential economic growth. It also enables the Council to generate various prognoses and scenarios of economic development. One of the reasons why the economic approach replaced the statistical approach was that the latter produced excessively optimistic growth forecasts during the upswing periods of cycles in the past. The production function uses the following inputs: total factor productivity, labour supply (employment * hours worked) and Capital Stock. On the left side of the production function is the potential output on which the output gaps are calculated.

Conclusion

The EU budget is a financial tool by which political priorities are turned into reality. All member states contribute to this budget and, at the same time, draw funds. Therefore, it is important to be informed about the way that common financial means are spent. The budget is a result of a mid- and short-term planning approach which not only concerns the needs of the EU as a whole, but

also the needs of the individual Member States. The financial perspective as a mid-term financial plan reflecting the goals of the Community is updated and amended to meet the requirements of the present economic environment. During this updating various economic prognoses generated by the EC and Member State authorities are used. The EU budget is a good example of transparent financial planning that takes into account various macroeconomic prognoses a well as various political negotiations.

References

[1] DENIS,C., GRENOUILLAUE, D., MC MORROW, K. AND W. RÖGER (2006), Calculating potential growth rates and output gaps – A revised production function approach, Economic Papers 247, European Commission.

[2] DENIS,C., MC MORROW, K. AND W. RÖGER (2002), Production function approach to calculating potential growth and output gaps – estimates for the EU Member States and the US, Economic Papers 176, European Commission.

[3] EurActive (2004), Prvotný rámec pre diskusiu o nasledujúcej finančnej perspective, Ekonomika a Euro

[4] European Commission (2000), COUNCIL REGULATION (EC, EURATOM) No 1150/2000, Official Journal of the European Communities L 130/1.

[5] European Commission (2001), The impact of enlargement, Enlargement Papers 4, June.

[6] European Commission (2004), COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT, Building our common Future: Policy challenges and Budgetary means of the Enlarged Union 2007-2013 (COM(2004) 101 final/2).

[7] European Commission (2004), COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT, Financial Perspectives 2007-2013 (COM(2004) 487 final).

[8] European Commission (2004), COUNCIL REGULATION (EC, EURATOM) No 2028/2004, Official Journal of the European Communities L 352/1.

[9] European Commission (2005), Preliminary Draft budget of the European Communities for the Financial Year 2006.
http://eur-lex.europa.eu/budget/data/AP2006_VOL0/EN/Vol0.pdf

[10] European Commission (2006), Preliminary Draft budget of the European Communities for the Financial Year 2007.
http://eur-lex.europa.eu/budget/data/AP2007_VOL0/EN/Vol0.pdf

[11] European Commission (2007), Predbežný návrh opravného rozpočtu č. 5 k všeobecnému rozpočtu na rok 2007 – všeobecný výkaz príjmov.

[12]European Commission DG ECFIN, Spring economic forecasts 2007, EUROPEAN ECONOMY. No. 2. 2007.

[13] European Commission, European Parliament and European Council (2006), Inter-institutional Agreement between the European Parliament, the Council and the Commission on budgetary discipline and sound financial management (2006/C 139/01), Official Journal of the European Union.

[14] European Communities (2006), Financial Report 2004.
http://ec.europa.eu/budget/library/publications/fin_reports/fin_report_04_en.pdf

[15] European Communities (2006), Financial Report 2005.
http://ec.europa.eu/budget/library/publications/fin_reports/fin_report_05_en.pdf

[16] Jan in ,t Veld (2007), The potential impact of the fiscal transfers under the EU Cohesion Policy Programme, EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 283. June 2007. European Commission. Brussels. 32 pp.
http://ec.europa.eu/economy_finance/publications/economic_papers/2007/economicpapers283_en.htm

[17] European Parliament (2007), FINAL ADOPTION of the general budget of the European Union for the financial year 2007 (2007/143/EC, EURATOM).

[18] European Parliament, Committee on budgets (2004), Notice to members – Handbook for new Committee Members.
http://www.europarl.europa.eu/meetdocs/2004_2009/documents/cm/531/531576en.pdf

[19] Opinion of the European Economic and Social Committee on the Communication from the Commission to the Council and the European Parliament – Building our common future: Policy challenges and budgetary means of the enlarged Union 2007-2013(COM(2004) 101 final).
http://eur-lex.europa.eu/LexUriServ/site/en/oj/2005/c_074/c_07420050323en00320039.pdf

Letters from The European Commission, Directorate-General for Budget, Directorate B – Own Resources, evaluation and financial programming, B1- Multi-annual financial framework; funding systems and forecasts; budgetary aspects of enlargement (2007).

Webpage of DG BUDG of the European Commission.
http://ec.europa.eu/dgs/budget/index_en.htm

Webpage of DG ECFIN BUDG of the European Commission.
http://ec.europa.eu/economy_finance/index_en.htm

EFFECTIVENESS OF MONETARY POLICY UNDER THE CONDITIONS OF A TRANSITIVE AND ACCEDING ECONOMY (THE CASE OF THE SLOVAK REPUBLIC)

Vladimír KVETAN, Viliam PÁLENÍK

Introduction

The transition of former centrally planned economies is an unprecedented process. It consists not only of changes to economic, political and institutional orders but also of the rebuilding of major behavioral patterns. Continuity and consistency of economic policy in cooperation with a particular reform strategy and the necessary public support present the essential conditions of success for each transition country.

In the transition process of the Slovak Republic, the political environment has been an important factor. The impact of politics on the Slovak economy's transformation has been much more significant than in other transition economies. The creation of an independent Slovak Republic markedly impacted the trends that followed in the whole transition process.

The transition of the Slovak economy can be divided into three stages which differ in the fiscal, monetary, and economic policies applied. Different approaches to economic transition were used in each of these three stages. Each stage had its own economic performance and growth as well.

The first stage (1993 – 1995) – *The Stage of Recovered Growth* – is characteristic of a revived economic growth after the initial transition depression. The baseline of this stage is the rejection of the previously applied transition strategy and the creation of a so-called "own way of transition".

The second stage (1996 – 1998) – *The Stage of Imbalanced Growth* – is specified by the fully manifested results of the "own way". This period is also characteristic of the absence of monetary and fiscal coordination, a slow-down of the transition process, price fixing, a lack of efforts to increase labor productivity and the enormous growth of state investments. The result of all of this was high but unsustainable economic growth and increased internal and external imbalances.

The "own way" of transition and imbalanced growth was the essence of economic development till the end of 1998 when a new government was formed and a new transparent economic policy was adopted. The stage after 1998, which has lasted till now, can be called *The Stage of the Standardization of Economic Policy.* The main characteristic of this stage is the gradual adoption of standard tools of economic policy.

This paper describes the mechanism of monetary policy relations in the economy of the Slovak Republic. The main focus is on the increasing influence of and ability to use standard monetary policy tools. The analyses used are based on a Mundell – Fleming type of model of the Slovak economy for each particular period. Using this model we will show the efficiency of monetary policy during the periods since the creation of Slovak Republic in 1993 till the pre-accession year of 2003.

The first part of the paper describes a modified Mundell – Fleming model for Slovakia's transition economy. These analyses will show the gradual standardization of economic behavior and mechanisms in the Slovak economy in the three stages of transition characteristic of the different economic conditions and different economic policy applied. Foreign trade and gross capital formation will be the main focus of the analyses. These GDP components are mainly impacted by monetary policy.The money demand equation will be described as well.

The second part of the paper offers some qualitative analyses based on the model. The analyses will describe the effectiveness of monetary policy relative to GDP. The overall interest rate of credits and the exchange rate will be used as the main tools for these analyses. It will also include analyses of monetary policy types in coordination with the fiscal policy that was applied.

2.1. Model of a Small and Open Economy

The foundation of the model is the Mundell – Fleming model, which describes the market of goods and services in interaction with the money market and focus on foreign trade. It is based on Keynesian principles which describe the relations on the side of aggregate demand. The main goal of building up the model is to provide a tool for the qualitative analyses of processes taking place during the transitive period. Aggregate demand *Y* is, in our case, described by GDP in constant prices. It is the sum of domestic demand (sum of private consumption *C*, government consumption *G* and investments *I*) and net export (difference between export of goods and services *EX* and import of goods and services *IM).*

$$Y = C + I + G + (EX - IM) \tag{1.1}$$

While constructing particular equations we have to keep in mind the following basic ideas. The equation specification has to describe the economic reality significantly and substantially. On the other hand, we wanted to construct relatively simple model specifications, in order to have a tool for further analyses. We considered the linear specification to be best. The inner logic of the equations comes from previous works on macroeconomic models of the Slovak Republic. *(Páleník et al (1998), Kvetan (2003))*

The private consumption equation C is described as a function of total income Y. The influence of the state budget and taxes paid, which decrease the income level, is not considered. The basic idea is that the transition process is characteristic of price shocks and other qualitative changes. The majority of the population's income is consumed with the objective of maintaining their standard of living. The result is the supplementation of the outflow caused by taxes and a lack of saving.

$$C = c(Y_+) \tag{5.2}$$

The equation for investments *I* describes the relation between income (GDP) *Y* and the real interest rate *(i – π)*[24]. We expect a positive impact of income on investments. A negative impact is expected in the case of the real exchange rate. Rising interest rates increase the price of credits and so decrease the willingness to invest. We have tried to implement several forms of interest rates to the investments equation. The real interest rate is included in the equation because of two reasons. The first reason is that the real interest rate describes relations between investments and interest rates in a more detailed manner. The second reason is that better statistical results are obtained.

$$I = I(i -_{-} \pi, Y_+) \tag{5.3}$$

As for the state budget, we adopt an assumption that during the transition process incomes and expenditures do not behave in a standard fashion. There has been no relevant and simply-described interaction observed. Because of these reasons we take the government consumption *G* as an exogenous variable.

The export of goods and services *EX* is significantly correlated with the development of the world economy and the real exchange rate. We use imports of developed countries *FD* as an indicator of world economy development. The growth of foreign imports (foreign demand) is associated with increasing Slovak exports. The real exchange rate *ε* is calculated as[25] $\varepsilon = e\frac{P}{P^*}$. The appreciation of our currency makes our exports more expensive and consequently decreases exports.

$$EX = ex(\varepsilon_-, FD_+) \tag{5.4}$$

24 *i – nominal interest rate, π – inflation rate*

25 *(e – nominal exchange rate, P – domestic price level and P* – foreign price level).*

Import *IM* is influenced by two basic factors; the import demand and its price. The import demand is described by the aggregate demand *Y.* The price of imports is characterized by the exchange rate *ε*. Both variables have a positive impact on imports.

$$IM = im(\varepsilon_+, Y_+) \tag{5.5}$$

Aggregate demand *Y* consists of components of domestic demand (C, I, G) and net exports *NX*[26].

$$Y = C(Y) + I(r, Y) + G + NX(\varepsilon,\ FD,\ Y) \tag{1.6}$$

Along with aggregate demand money demand is also contemplated. The money demand is a function of interest rate *i* and aggregate demand *Y*. Nominal interest rate *I* describes the price of money. Aggregate demand *Y* describes the necessary amount of money to leave in circulation to serve the economy. This describes the transaction motive of money holding.

$$L = l(i_-, Y_+) \tag{5.7}$$

Taking all the aforementioned functionalities into consideration, we build up the IS–LM model of the small and open economy of Slovakia. After adopting all relations we can describe the model as follows:

(IS)	Y	$= C(Y) + I(r, Y) + G + NX(\varepsilon, FD, Y)$	
(LM)	M/P	$= L(Y, i)$	
	r	$= i - \pi$	
	$C(Y)$	$= \alpha + bY$	
	$I(r,Y)$	$= c - d_1 r + d_2 Y$	(Model A)
	$NX(\varepsilon, FD, Y)$	$= EX(\varepsilon, FD) - IM(\varepsilon, Y)$	
	$EX(\varepsilon, FD)$	$= l_1 - l_2\,\varepsilon + l_3 FD$	
	$IM(\varepsilon, Y)$	$= m_1 + m_2\,\varepsilon + m_3 Y$	
	$L(i, Y)$	$= h + gY - fi$	

Model A characterizes the basic mechanisms of a functioning economy – domestic demand, foreign trade and money demand. We do not take the redistribution process serviced by fiscal tools – taxes and state budget expenditures – into consideration.

The qualities of the model were verified in particular periods of the transition process. We tested whether the same model specification could be used in different stages of economic transition from a centrally planned economy to market principles. We conclude that some modifications of the basic model (Model A) should be made for different periods. The basic econometric methods (*Griliches, Intriligator* (*1983*)) were used during these analyses. In the analyses we have been focused mostly on the statistical significance of particular parameters, rather than a quantitative result.

The basic model (Model A) for the transitive economy of Slovakia differs from the well known models of standard economies. *(Dornbush (1998) McKenna and Rees (1992), Mankiw (1997), Blanchard (2004)).*The most significant difference lies in the modelling of foreign trade and money demand. The equations for foreign trade differ from the standard ones by a combination of two variables – exchange rate and demand for imports and respectively, exports. The modification of the money demand equation is an inclusion of the intercept[27] which describes the fixed amount of money in demand regardless of the economy's development. The explanation is provided by assuming a "black" or "grey" economy. The private consumption equation is slightly modified too. It captures no significant impact of disposable income. The only explanatory variable of private consumption is aggregate demand *Y.*

26 $NX(\varepsilon,\ FD,\ Y) = EX(\varepsilon,\ FD)\ -\ IM(\varepsilon,\ Y)$

27 *Standard equations do not include an absolute term*

2.2 Model for the First Period (1993 – 1995)

Theoretical model (Model A) was at first verified on the data for the first period of transition – *The Stage of Recovered Growth*. Basic econometric methods (OLS) were used to verify the model. Seasonally adjusted GDP data[28] were used in the estimations. In the regression process we focused mostly on the statistical significance of particular parameters. A 5% significance level was set as a critical value. To reach the best equation characteristics (high R^2 and optimal Durbin Wattson) was not the basic goal. The main focus was on the verification of specification significance. The results of the first estimation are illustrated in Table 2.2.1[29].

Table2.2.1

Estimation of parameters in Model A in the period 1993 − 1995

	const.	*Y*	*r / i*	*E*	*FD*	R^2	*DW*
C(*Y*)	28.03 (0.059)	0.33 (0.007)	-	-	-	0.53	1.56
I(*Y.r*)	-7.43 (0.849)	0.32 (0.280)	-0.60 (0.209)	-	-	0.17	1.58
EX(*ε.FD*)	-25.72 (0.670)	-	-	16.81 (0.784)	0.004 (0.001)	0.75	1.21
IM(*ε.Y*)	67.07 (0.365)	0.85 (0.013)	-	-99.93 (0.249)	-	0.74	1.91
L(*i.Y*)	27.35 (0.316)	2.33 (0.000)	-5.25 (0.008)	-	-	0.95	1.78

As we can see from the table, the basic Model A does not fit the data for the first stage. The deviation is mostly in the significance values for interest rate *r* resp. *i* and exchange rate *ε*[30]. For this period we have to exclude these variables. The money demand equation is valid, while interest rates and income levels significantly correspond with theory. The statistical insignificance of the intercept is ignored.

Based on previous analyses, the model for the first stage of transition was built (Model B). Verification was made in a similar way. The results are in Table 2.2.2

$$
\begin{aligned}
&\text{(IS)} && Y && = C(Y) + I + G + NX(FD, Y) \\
&\text{(LM)} && M/P && = L(Y, i) \\
& && r && = i - \pi \\
& && C(Y) && = \alpha + bY \qquad \text{(Model B)} \\
& && NX(FD, Y) && = EX(FD) - IM(Y) \\
& && EX(FD) && = I_1 + I_3 FD \\
& && IM(Y) && = m_1 + m_3 Y \\
& && L(i, Y) && = h + gY - fi
\end{aligned}
$$

28 *Adjusted by X12 method*

29 *The significance levels are in brackets under particular parameters*

30 *Significance level is higher than 0.05*

Table 2.2.2

Estimations of parameters in Model B in the period 1993 − 1995

	Const.	*Y*	*r / i*	*E*	*FD*	R^2	*DW*
C(*Y*)	28.03 (0.059)	0.33 (0.007)	-	-	-	0.53	1.56
I	-	-	-	-	-	-	-
EX(*FD*)	-9.96 (0.555)	-	-	-	0.004 (0.000)	0.75	1.17
IM(*Y*)	-12.48 (0.674)	0.64 (0.014)	-	-	-	0.69	1.49
L(*i.Y*)	27.35 (0.316)	2.33 (0.000)	-5.25 (0.008)	-	-	0.95	1.78

The markedly reduced Model B proves that the Slovak economy in the first stage did not behave in a standard manner. The evidence is provided by the absence of interest rates and exchange rates in the equations of the real economy. We can conclude from this that the monetary policy was not effective in the first period of transition.

Only the private consumption equation confirmed our theory. We decided that investments were exogenous due to the non-significance of all explanatory variables. Foreign trade was dependant only on the demand for imports or exports. No exchange rate was effective. It is of interest that the money demand equation was valid for this period. On the other side it had no significant relation to the real economy. This can be connected to the chaotic development in investments when government investments played a major role. The other explanation is that money demand was not based on investments. Money demand caused by the insolvency of enterprises[31] was of major importance.

2.3. Model for the Second Period (1996 – 1998)

As with the first stage, an initial analysis of Model A was done for the second period – *The Stage of Imbalanced Growth*. The results are in Table 2.3.1.

Table 2.3.1

Estimations of parameters in Model A in the period 1996 − 1998

	Const.	*Y*	*r / i*	*E*	*FD*	R^2	*DW*
C(*Y*)	-14.38 (0.194)	0.63 (0.000)	-	-	-	0.91	1.35
I(*Y.r*)	-100.52 (0.000)	1.02 (0.000)	-1.52 (0.071)	-	-	0.94	1.52
EX(*ε.FD*)	51.52 (0.010)	-	-	-55.20 (0.028)	0.003 (0.000)	0.95	2.16
IM(*ε.Y*)	-186.77 (0.000)	1.53 (0.001)	-	44.04 (0.010)	-	0.87	1.49
L(*i.Y*)	-74.03 (0.218)	3.02 (0.000)	-3.48 (0.061)	-	-	0.95	1.16

31 *Enterprises took credits to pay the wages and financial obligations to suppliers etc.*

It is obvious that the second stage differs from the first one and it is closer to theoretical hypothetical Model A. The exchange rate becomes significant in the second stage (difference from model B). Interest rates are still not significant and are excluded from the equation of investments and money demand. Investments in this model are significantly explained only by aggregate demand Y. The model for the second period – Model C is built. The results of the verification are found in Table 2.3.2.

$$
\begin{aligned}
&(IS) && Y && = C(Y) + I(Y) + G + NX(\varepsilon, FD, Y) \\
&(LM) && M/P && = L(Y) \\
& && C(Y) && = \alpha + bY \\
& && I(Y) && = c + d_2 Y \\
& && NX(\varepsilon, FD, Y) && = EX(\varepsilon, FD) - IM(\varepsilon, Y) \\
& && EX(\varepsilon, FD) && = l_1 + l_2\,\varepsilon + l_3\,FD \\
& && IM(\varepsilon, Y) && = m_1 + m_3\,\varepsilon + m_3 Y \\
& && L(Y) && = h + gY
\end{aligned}
\qquad \text{(Model C)}
$$

Table 2.3.2

Estimations of parameters in Model C in the period 1996 − 1998

	Const.	Y	r / i	E	FD	R^2	DW
C(*Y*)	-14.38 (0.194)	0.63 (0.000)	-	-	-	0.91	1.35
I(*Y*)	-102.88 (0.000)	0.97 (0.000)	-	-	-	0.87	1.59
EX(*ε.FD*)	51.52 (0.010)	-	-	-55.20 (0.028)	0.003 (0.000)	0.95	2.16
IM(*ε.Y*)	-186.77 (0.000)	1.53 (0.001)	-	44.04 (0.010)	-	0.87	1.49
L(*Y*)	240.13 (0.167)	0.90 (0.000)	-	-	-	0.98	1.38

Model C proves that the Slovak economy started to behave by standard relations in the second stage. The exchange rate mechanism began to function. Investments were no longer an exogenous variable and the money demand reacted to the needs of the economy. Interest rates still did not impact the economy.

The explanation lies in the undercapitalization of the economy and the marked outstripping of credit demand over supply. The main problem of that time was to have the ability to receive credit. Price was a secondary and minor matter. Money was often borrowed without a clear use in mind. This is obvious also from the money demand equation. The absence of interest rates and presence only of GDP in this equation can be characterized as a purely transaction role of money.

2.4. Model for the Third Period (1999 – 2002)

The behavior of the economy based on Model A was also analyzed in the third stage – *The Stage of the Standardization of Economic Policy*. This period is characteristic of the change of government and with it a change of economic policy. We expected that in this period the economy would behave by standard relations. We awaited the confirmation of initial theoretical Model A. The results of the verification estimations are in Table 2.4.1.

Table 2.4.1

Estimations of parameters in Model A in the period 1999 − 2002

	Const.	*Y*	*r / i*	*E*	*FD*	R^2	*DW*
C(*Y*)	-0.53 (0.969)	0.55 (0.000)	-	-	-	0.96	1.51
I(*Y.r*)	-30.29 (0.066)	0.47 (0.000)	-1.47 (0.022)	-	-	0.77	1.47
EX(*ε.FD*)	7.07 (0.782)	-	-	52.75 (0.101)	0.001 (0.059)	0.81	1.24
IM(*ε.Y*)	-203.70 (0.000)	1.65 (0.000)	-	36.16 (0.034)	-	0.92	1.89
L(*i.Y*)	173.54 (0.020)	1.45 (0.001)	-4.32 (0.002)	-	-	0.95	1. 67

All parameters of Model A for the period of 1999 – 2002 are significant at the 5% significance level, except for the export equation. The l_2 coefficient is of the incorrect sign, too. Further analyses brought about the conclusion that exports were not influenced by the absolute value of the exchange rate but rather by its trends over time. The explanatory variables of the export equation were thus changed. Exports were explained by world import *FD* and the change of exchange rate $\Delta\varepsilon$.If there is a steady change of the exchange rate[32] the impact to exports is minimal. Thus Model A' was built.

$$
\begin{array}{lll}
\text{(IS)} & Y & = C(Y) + I(r, Y) + G + NX(\varepsilon, \Delta\varepsilon, FD, Y) \\
\text{(LM)} & M/P & = L(Y, i) \\
 & r & = i - \pi \\
 & & \\
 & C(Y) & = \alpha + bY \\
 & I(r, Y) & = c + d_1 r + d_2 Y \\
 & NX(\varepsilon, FD, Y) & = EX(\Delta\varepsilon, FD) - IM(\varepsilon, Y) \\
 & EX(\varepsilon, FD) & = l_1 + l_2 \Delta\varepsilon + l_3 FD \\
 & IM(\varepsilon, Y) & = m_1 + m_3 \varepsilon + m_3 Y \\
 & L(Y) & = h + gY - fi
\end{array}
\qquad \text{(Model A')}
$$

Table 2.4.2

Estimations of parameters in Model A' in the period 1999 − 2002

	const.	*Y*	*r / i*	*ε* (*Δε*)	*FD*	R^2	*DW*
C(*Y*)	-0.53 (0.969)	0.55 (0.000)	-	-	-	0.96	1.51
I(*Y.r*)	-30.29 (0.066)	0.47 (0.000)	-1.47 (0.022)	-	-	0.77	1.47
EX(*Δε.FD*)	40.07 (0.001)	-	-	-58.91 (0.040)	0.002 (0.000)	0.93	1.28
IM(*ε.Y*)	-203.70 (0.000)	1.65 (0.000)	-	36.16 (0.034)	-	0.92	1.89
L(*i.Y*)	173.54 (0.020)	1.45 (0.001)	-4.32 (0.002)	-	-	0.95	1. 67

All the parameters are statistically significant. We can conclude that the model based on theoretical background describes well the economy over 1999 – 2002.

32 *Exchange rate does not change or it appreciates or depreciates at a constant rate.*

This small analysis gives us several important conclusions. The economy started to behave in a standard way in 1999. The negative impact of interest rates on investments and on money demand was finally significant. Imports were mainly influenced by the GDP value and exports by the value of foreign demand. The higher significance values of exchange rate variables (in the import equation as well as in the export equation) give us room for thinking of further exchange rate importance in reaction to foreign trade.

2.5. Analyses of Monetary Policy Effectiveness

The qualitative analyses are focused on impacts of monetary output. For these analyses Model A, which describes the last period, is chosen. This model gives us a complex description of processes in the Slovak economy. Model A also describes the period when the economic processes started to behave in a standard manner. The other reason is that the monetary policy in the periods described by Model B and Model C did not have a significant influence. The main focus is on the money supply M and coefficients of liquidity equation *L(i,Y)* – coefficients *h, g, f.*

The National Bank of Slovakia dropped the fixed exchange rate policy at the end of 1998. As follows from our analyses and knowledge of the Slovak economy, there was no significant interaction between the domestic and foreign interest rates assumed . The reason is that, in the monitored period, the trends in domestic and foreign interest rates were very different. The model is specified by the equations ISk and LMk. The analytical forms of the IS and LM curves are the following:

(IS) $Y = \alpha + bY + c - d_1 r + d_2 Y + G + I_1 - I_2 \Delta\varepsilon, + I_3 FD - m_1 - m_2\, \varepsilon - m_3 Y$

(LM) $M/P = h + gY - fi$

$r = i - \pi$

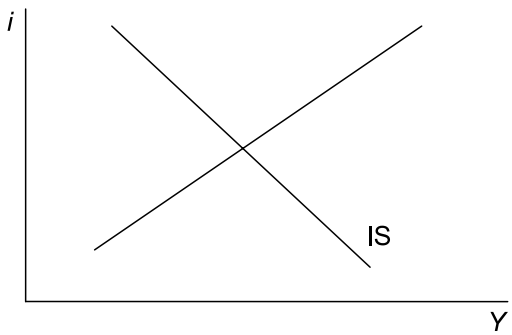
(IS_k) $r = 1/d1[a + (b - 1 + d2 - m3)\, Y + c + G + I1 - I2\, \Delta\, \varepsilon + I3FD - m1 - m2\, \varepsilon]$

(LM_k) $M/P = 1/f\, (h + g\, Y - 1\, M/P)$

$r = i - \pi$

Based on the empirical verification, the coefficient $\frac{b + d_2 - 1 - m_3}{d_1}$ of *Y* in the IS_k curve is negative. This corresponds to the IS-LM model's theory of the decreasing trend of the IS_k curve. The coefficient $\frac{g}{f}$ of *Y* in LM_k curve is positive. This manifest increasing trend of the LM_k curve is shown in Figure 1

Figure 1



The results of the equation system (IS), (LM) are product *Y** and exchange rate *r** corresponding to the equation on the market of goods and services and money market:

$$Y^* = \frac{1}{1-b+\frac{d_1 g}{f}-d_2+m_3}\left(a+c-\frac{d_1 h}{f}+\frac{d_1}{f}\frac{M}{P}+G+l_1-l_2 de+l_3 FD-m_1-m_2 e\right) \tag{5.1}$$

with a Keynes' multiplier: $\frac{1}{1-b+\frac{d_1 g}{f}-d_2+m_3}$

The increase of income *Y* driven by an expansive fiscal policy causes an increase of the transaction demand for money. In the case of a restricted supply on the money market a new balance is established. This new balance is characteristic of higher interest rates. Increasing interest rates negatively affects the volume of investments. Decreasing investments leads to the partial neutralization of the initial positive change of income. The new balance solution can be analyzed under conditions of changes of crucial monetary parameters.

Formula (5.2) represents the impact of the monetary base (adjusted for price changes) on GDP.

$$\frac{\partial Y}{\partial (M/P)} = \frac{\frac{d_1}{f}}{1-b+\frac{d_1 g}{f}-d_2+m_3} > 0 \tag{5.2}$$

In the short run we can assume that the price level P is constant. An expansive monetary policy that increases the nominal money supply leads to an increase of total product in the short run. This is presented by formula (5.3).

$$\frac{\partial Y}{\partial M} = \frac{\frac{d_1}{f}\frac{1}{P}}{1-b+\frac{d_1 g}{f}-d_2+m_3} > 0 \tag{5.3}$$

The increase of the money supply leads in the medium run to increasing price levels. This, due to formula (5.4), has an opposite effect and neutralizes the previous impact of M.

$$\frac{\delta Y}{\delta P} = -\frac{\frac{d_1}{f}\frac{M}{(P)^2}}{1-b+\frac{d_1 g}{f}-d_2+m_3} < 0 \tag{5.4}$$

The real money supply combines these two effects. It is possible that an expansive monetary policy influences price levels significantly. This can even decrease the money mass *M/P*[33]. Monetary expansion leads finally, under these circumstances, to a real restriction and decrease of output *Y* in the medium run. The importance of monetary policy is, in the medium run, in how it afflicts the real mass of money.

A discussion about coefficients of money demand equations is important to judge the behavior of the economy on the monetary field. An increase of the autonomous money demand *h* leads to upward movements of the LM curve. The result of this is the decrease of equilibrium output *Y.* This relation is presented by formula (5.5)

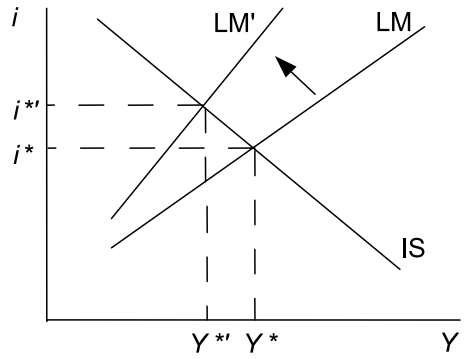
$$\frac{\partial Y}{\partial h} = -\frac{\frac{d_1}{f}}{1-b+\frac{d_1 g}{f}-d_2+m_3} < 0 \tag{5.5}$$

33 *Price level P increases more than nominal money supply*

Parameter g presents the sensitivity of money demand to changes of aggregate output Y. Higher values of this parameter lead to a steeper slope of the LM curve. This results in the decrease of GDP and an increase of interest rates as presented by Figure 2 and formula (5.6).

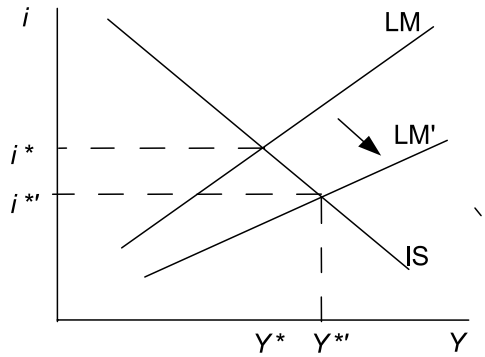
$$\frac{\partial Y}{\partial g} < 0 \tag{5.6}$$

Figure 2



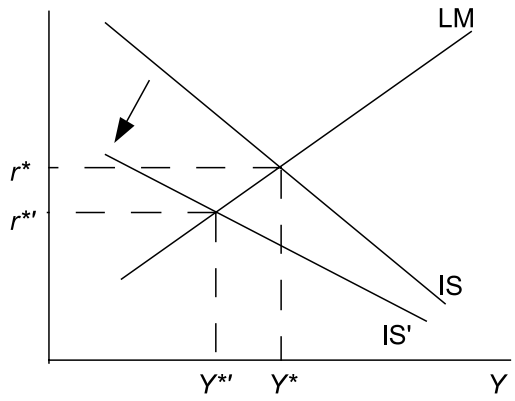
As follows from the analyses of money demand sensitivity, market subjects are more sensitive to interest rates in the decision making process of allocation of resources. Increasing interest rates leads to faster decrease of demand and subjects investing into other liabilities. The LM curve decreases its slope and moves down. In the case of unchanged conditions on the market of goods and services this leads to a positive change of income *Y.*

Figure 3



The sensitivity of investments to the interest rate is explained *by parameter* d_1 and affects the slope of the IS curve. We assume that enterprises react to interest rates more sensitively (increase of d_1). Increasing interest rates causes larger decreases of investment activity. The IS curve moderates its slope and moves down. This leads to a decrease of equilibrium GDP under balanced conditions on the money market (moving along the LM curve), as shown in Figure 4.

Figure 4



In the next part we will focus on pointing out the factors influencing the intensity of monetary policy. Only the signs of partial derivatives will be presented. Complete formulas and other analyses are to be found in the paper (*Luptáčik et al. (2004)*). The height of the marginal propensity to consume and marginal propensity to invest positively impacts the level of the money multiplier. This means that in those economies with high values of *b* and d_2 the monetary policy is more profitable.

$$\frac{\partial Y}{\partial (M/P)\partial b} = \frac{\partial Y}{\partial (M/P)\partial d_2} > 0 \tag{5.7}$$

The level of import demand of output m_3 afflicts economic policy in the opposite way. Higher values of the parameter lead to the neutralization of the positive changes of Y which are caused by monetary policy. The policy impact is thus diminished.

Parameter *g*, the sensitivity of money demand to *Y,* influences the intensity of monetary policy negatively.

$$\frac{\partial Y}{\partial (M/P)\partial g} < 0 \tag{5.8}$$

Parameters f and d1, which present the sensitivity of money demand to interest rates, affect economy policy differently. From the point of view of the efficiency of the monetary policy performance it is important that coefficient d1 should be at a maximum and coefficient f at a minimum. We can see from formulas (5.9) and (5.10) that in such case the change of M/P causes an important change of Y.

$$\frac{\partial Y}{\partial (M/P)\partial d_1} > 0 \tag{5.9}$$

$$\frac{\partial Y}{\partial (M/P)\partial f} < 0 \tag{5.10}$$

Conclusion

The main goal of this paper was to describe the functioning of monetary policy mechanisms under the conditions of an economy in transition. As a tool for these analyses the Mundell – Fleming type of model was built (Model A). The analyses showed the gradual standardization of economic processes during the transition period.

For the first period (1993-1995) a reduced Model B is significant as the best description of processes. Model B is reduced to a simple expenditure model. The function of investments is insignificant for this model. Though the money demand equation is valid in this period, there is no significant relation to real economy. Monetary policy was not effective in this period.

The second period (1996-1998) is described by Model C. This model is characterized by the lack of significance of the interest rate, even in the money demand equation. This model describes an economy of massive state investments and credits taken not solely for the purpose of developing enterprises.

The third period (1999-2002) is characterized by the newly established government with its new economy policy. The central bank rejected the fixed exchange rate and started to adopt a controlled floating. The structure of the original Model A was confirmed as the best explaining model for this period.

The basic knowledge gained from the Model A analysis is that the economy started to behave in a standard way. The significance of interest rates in investments and money demand equations shows that economic subjects started to judge this variable in their decisions. The qualitative analyses of this model showed strong relations between monetary policies and the level of output. It is obvious that the monetary policy expansion in a small and open economy does not have to, under specific circumstances, lead to proportional growth of output.

References

1. Blanchard, O.: Macroeconomics. Prentice-Hall Inc, 1997.

2. Dornbusch, R.: Open Economy Macroeconomics. Basic Books, Inc. Publishers,1980.

3. Mankiw, N. G.: Macroeconomics. Third Edition, Worth Publishers, 1997.

4. McKenna, C. J.- Rees, R.: Economics: A Mathematical Introduction. Oxford University Press, 1992.

5. Griliches Z, Intriligator M. D.: Handbook of econometrics vol 1, Elsevier, 1983.

6. Luptáčik M., Páleník V., Kvetan V., Ďuráš J., Hrivnáková J., Ondko P.: Analytic description of transitive economy (Case of Slovak Republic), Institute of Slovak and World Economy, Slovak Academy of Science, (working paper) Bratislava, 2004.

7. PÁLENÍK, V. - BORS, L. - KVETAN, V. - VOKUN, J.: Construction and Verification of Macroeconomic Model ISWE97q3. Ekonomický časopis., 46, 1998, Nr.: 3, p. 428-466.

8. KVETAN V.: Projections of Future Development and Convergence of Slovak Republic towards the EU average after Finishing the Integration Process, Workshop on Economy Policy Modeling, CPB, Den Haag, 13.11.2003.

9. KVETAN V. – PÁLENÍK V. Effectiveness of Monetary Policy under Conditions of Transitive and Acceding Economy (Case of Slovak Republic). In Forecasting Financial Markets and Economic Decision-making - FindEcon, 6. – 8. 5. 2004. Poľsko, Lodž: 2004.

AGING, HEALTH STATUS AND DETERMINATION OF THE HEALTH EXPENDITURES (LONG TERM MODEL)

Viliam PÁLENÍK, Vladimír KVETAN, Martin MLÝNEK and Marek RADVANSKÝ

Introduction

Income and expenditures on health systems have tended to rise as a proportion of national income throughout the European Union. A particular concern is that, with an ageing population and therefore the prospect of more old people, the pressures for health care expenditures will increase further. The Aging, Health Status and Determinants of Health Expenditure project[34] set out to refine existing estimates of the links between aging, reported states of health and the use of medical services. The Slovak country report calculated, analysed and discussed health expenditure scenarios in Slovakia.

After social shifts in 1989, the Slovak economy passed through a decade of transformation from a directed economy to a free market economy. As in other transition economies, the Slovak economy could not avoid a transformation-linked recession. In Slovakia, two negative health system effects have combined:

- the impact of transformation recession on the financial outlook of the health system;
- traditionally, public sectors (and the health care system is a typical example) did not undertake the transformation process at all, or only made a partial transformation and were the last sectors to start the transformation process.

As a consequence, the national healthcare systems in transition economies fail to profit from the transformation of the economy and the transition to a market oriented healthcare system due to a privatization and liberalization lag. The Slovak health care system entered the 21st Century:

- in poor financial condition corresponding to the economy after transformation recession;
- with a socialistic internal organization;
- with a fully liberalized world pharmaceutical and medical equipment market;
- with an population aging problem;
- and with a high unemployment rate.

This situation brings many challenges for the healthcare system of Slovakia for the future. In the basic setting of receipts and expenditures of healthcare system will be one of the challenges in the future, especially with providing the best healthcare possible for citizens.

The goal of this work was to a construct macroeconomic model of revenues and expenditures of the healthcare system and the application of that model in the quantification of the basic forecast for healthcare budgeted and for sensitivity analysis. The aim of the work is based on predictions of

- life expectancy
- real wage projection
- employment rate projection.

3.1. Methodology

3.1.1. Health Care Expenditure Models in Slovakia

For the purpose of quantifying the revenues and expenditures of the Slovak health system on the macroeconomic level, we have constructed an econometric model for this project.

34 *The project AHEAD (Aging, Health Status and Determinants of Health Expenditure) was founded under the EU 6th Research Framework Programme with 18 participating institutes from 16 EU countries (see: http://www.enepri.org/Ahead, [4],[5]).*

The only publication that is close to health care modelling is based on the econometric model of the Slovak economy [1]. This model is based on a modification of macroeconomic models that are built in the Institute for Economic Research, a part of the Slovak Academy of Sciences [2].

The core of this model is the description of the impact and mutual dependence of macroeconomic variables in the real economy. The model consists of eight blocks of equations each describing a particular part of the economy. In the block of prices and deflators the main prices (CPI, PPI) and deflators of GDP components are described. The labor market block consists of equations for the demand and supply of the labor force. The labor force supply is based on demographic forecasts. The population block describes micro – macro relations. Nominal wages and employment (micro level) are combined with labor and other incomes resulting in household disposable income, which is spent for consumption or kept as savings. In the block of foreign trade, the prices and values of Slovak exports and imports are calculated. The main indicators, GDP and components of use, are calculated in a block of GDP. The monetary block describes the interactions between monetary policy and the real economy. The state budget income and expenditures are calculated in the state budget block.

A model of the healthcare system of SR was created by modifying and extending the macroeconomic model used by researchers. The relevant model modules are aimed at the labor market, the demand for health services and healthcare budget and macroeconomics. The expenditure model of the health security system consists of four mutually interconnected modules describing relations between demographic development and the labor market together with the overall economic situation in Slovakia and their interface on the health security system and the public sector budget (see Figure 1).

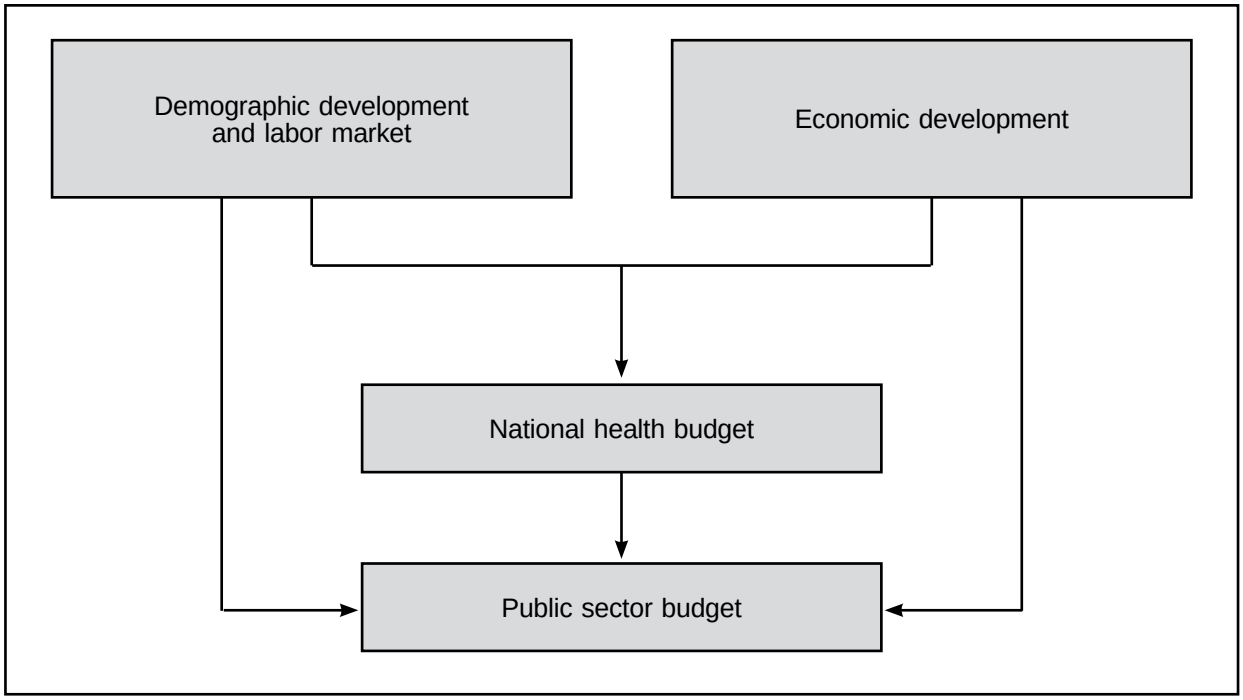


Figure 1 – Basic relations in the expenditure model of the health care system

3.1.2. Data Source for the Model

The main economic indicators are based on national accounts. They are provided by the Statistical Office of the Slovak Republic. The compilation of the National Accounts of the Slovak republic is based on the European System of Accounts 95 (ESA 95). Other data, for example the consumption price index and real wage growth data, are also published by the Statistical Office of the Slovak Republic on a quarterly basis and are compiled with ESA 95 methodology.

The main economic performance indicators for the health care system are provided by the Health Statistic Yearbook. Its publications provide a yearly-based overview of health services and the health status of the Slovak Republic's population. It is issued by the National Centre of Health Information (formerly the Institute of Health Information and Statistics) in Bratislava. The data for the health care budget are based on OECD national health data.

3.1.3. Basic Assumptions of the Forecast

The forecasts, both economic and demographic, are anchored on three basic assumptions [3]:

First, that the size of government measured as total government expenditures as a share of gross domestic product (GDP) will be stable throughout 2005-2050. This assumption is based on the fact that that there are no indications and concepts that the current government will raise taxation and increase the size of government by additional spending. Since the government aims to meet Maastricht criteria and further Pact of Stability and Growth it is limited by these criteria, especially by maintaining an annual deficit of below 3% of GDP.

Second, that the growth of the economy, as measured by real GDP growth, will converge to the average growth of the European Union and that the Slovak economy will converge to the European Union average as measured as GDP per capita, between 2030 and 2040. After the convergence period, however, the Slovak economy will lose some of its comparative advantages and therefore we are assuming that the growth of the economy will be around the EU average growth, which we are forecasting at 2.5% annual real GDP growth.

Third, that Slovakia's demographics will change dramatically because of the population's ageing and a low birth ratio. This change will have an impact primarily on the labor market. The drop in the birth ratio and the total fertility rate between 1990 and 2005 is a result of the transition from a planned economy to a free market, mixed economy. As result of these development trends the current population age groups between 5 and 20 years old are substantially lower than before and in the long term this will lead to a shrinking of the work force as a percentage of the total population.

The participation rate of the work force, the unemployment rate, productivity and wage growth as well as real GDP growth rate are the main variables that impact on health care revenues as well as total government revenues. The population's ageing and structural changes, birth ratio, wage growth of medical staff, utilization of health facilities and medical staff are the main variables that affect health care budgets and expenditures including the social security system and real interest rates, and the total expenditures of the government.

3.2. Main Results

3.2.1. Demographic Variables

Between 2003 and 2015 we are expecting the population to grow at a 0.06% annual average growth rate. After 2015 the death ratio will be permanently higher than the birth ratio so between 2015 and 2030 we expect a -0.2% average annual growth rate of the total population and after 2030 a -0.5% average annual growth rate.

The total fertility rate (TFR) for the Slovak population has been dropping since 1980, and we expect this trend to continue until 2010, hitting bottom with a 1.19 TFR. The primary reason for this development is the recession and huge drop of real Gross Domestic Product and per capita real income after the fall of communism and the planned economy between 1989 and 1993. Unstable economic development, high unemployment, reforms and the transition of the economy to a free market, mixed economy after 1990 was another crucial element in the TFR drop. We expect that the increase of real per capita income and high economic growth between 2005 and 2015 will lead to a change in the TFR trend and that after 2010 it will demonstrate a slowly growing trend. Between 2010 and 2030 we expect a rise of TFR from 1.19 to 1.43 and until 2050, when it will have grown to 1.71 (see Table 11).

Table 1

Demographic variables

	2003 (base year)	2010	2015	2020	2025	2030	2035	2040	2045	2050
Grow rate – total	0.10%	0.07%	0.01%	-0.11%	-0.25%	-0.35%	-0.44%	-0.53%	-0.61%	-0.68%
Total fertility rate (TFR)	1.29	1.19	1.22	1.29	1.36	1.43	1.50	1.57	1.64	1.71
Life expectancy (LE) – males	70	72	73	74	74	75	76	76	77	77
Life expectancy (LE) – females	78	79	80	80	81	82	82	83	83	83
Sex ratio (males : females)	0.944	0.949	0.951	0.952	0.950	0.948	0.945	0.941	0.938	0.935

3.2.2. Labor Market Variables

The development of the labor market will be affected mainly by population growth and by high economic growth. High long-term unemployment is one of the main problems on Slovakia's labor market. We assume that the fight with long-term unemployment will be a rather slow process, due to the low education and immobility of the long-term unemployed.

We are expecting employment growth at 1.35% per annum between 2005 and 2015, because of high economic growth and high demand on the labor market. After 2015 we assume a drop in employment growth and after 2020 we expect a decline of employment. This development is based on structural changes in the population after 2015 which will lead to a fall of the share of the employed in the total population (see Table 2).

Table 2

Labor market variables

	2003 (base year)	2010	2015	2020	2025	2030	2035	2040	2045	2050
Participation rate – total	69.5%	70.0%	71.1%	72.4%	73.2%	73.1%	71.9%	71.4%	71.7%	72.1%
Participation rate – males	76.3%	76.4%	77.0%	77.5%	77.5%	76.9%	75.5%	74.9%	75.0%	75.3%
Participation rate – females	57.3%	59.3%	60.8%	62.4%	63.9%	64.4%	63.7%	63.3%	63.4%	63.7%
Employment growth	0.8%	0.8%	0.5%	-0.4%	-0.4%	-0.7%	-1.1%	-1.3%	-1.4%	-1.2%
Unemployment rate	18.8%	11.7%	8.9%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Employment rate 15-64 – total	57.6%	62.0%	65.2%	68.6%	69.4%	69.3%	68.3%	68.0%	68.4%	68.9%
Employment rate 15-64 – males	63.0%	67.8%	70.6%	73.5%	73.6%	73.1%	71.9%	71.6%	72.0%	72.4%
Employment rate 15-64 – females	52.2%	56.2%	59.7%	63.6%	65.2%	65.5%	64.6%	64.4%	64.8%	65.5%

3.2.3. Economic Variables

We assumed the development of economic variables based on the economic forecast of the ECM-ISWE06q1 econometric error-correction model for 2006 to 2013. The forecast is based on an assumption of growing economic development with a peak in 2007 and between 2006 and 2008 at 6.5 – 6.8% real GDP growth. This assumption is based on high investment activities in the economy as result of high direct foreign and domestic investment and the high growth of personal consumption as a result of increasing real wage growth. After 2012 we are assuming a slight slowdown in the growth of economy and after 2015 we forecast real GDP growth at under 5% per annum. This slowdown is based on the assumption that the Slovak economy, as it converges towards the EU

average, it will lose its comparative advantages, for example, its relatively cheap but highly educated work force. Until 2030 we are expecting annual average real GDP growth above 3%. Because of the high uncertainty after 2030 we forecast a slowdown and a convergence of economic expansion to only 2.5% per annum of real GDP growth (see Table 3).

Table 3

Economic variables

	2003 (base year)	2010	2015	2020	2025	2030	2035	2040	2045	2050
Real GDP growth rate	4.5%	6.2%	5.1%	4.1%	3.2%	3.1%	2.9%	2.8%	2.6%	2.5%
GDP deflator	5.1%	2.9%	3.0%	2.9%	2.8%	2.6%	2.5%	2.3%	2.2%	2.0%
Nominal GDP per capita growth	9.0%	9.2%	8.3%	7.2%	6.3%	6.1%	5.9%	5.7%	5.5%	5.3%
Labor productivity growth	3.6%	5.3%	4.6%	3.7%	3.0%	2.9%	2.7%	2.6%	2.4%	2.3%
Real wage growth	-2.1%	4.3%	4.0%	3.4%	2.9%	2.8%	2.6%	2.5%	2.3%	2.2%
Inflation, CPI	8.6%	2.7%	3.1%	3.0%	3.0%	2.8%	2.6%	2.4%	2.2%	2.0%
Real interest rates	-1.0%	2.4%	2.2%	2.7%	3.0%	2.9%	2.8%	2.7%	2.6%	2.5%

3.2.4. Results of the Projection

Our baseline scenario results indicate that the current adjustment of the health system will have a slightly decreasing surplus until 2025. After 2025 the health budget will run a growing deficit with an average deficit 1.2% share of GDP per annum rising from a balanced budget to a deficit of 2.35% in 2050. Health system expenditures will grow by an average 9.2% between 2005 and 2015. After the assumed slowdown of economic growth, healthcare expenditures will grow at an average 7.2% annual rate between 2015 and 2035, and after 2035 the annual average growth rate of health expenditures will be 5.7%. Revenues for health care will grow at a 7.8% average annual rate between 2005 and 2015. After the assumed slowdown of economic growth, revenues for the health system will slow to a 5.2% average annual growth rate between 2015 and 2035. After 2035 the average growth rate of health revenues will be 3.3% per year. The higher growth rate of expenditures in the forecasting period is mainly due to the population aging (see Table 1 and Graph 1).

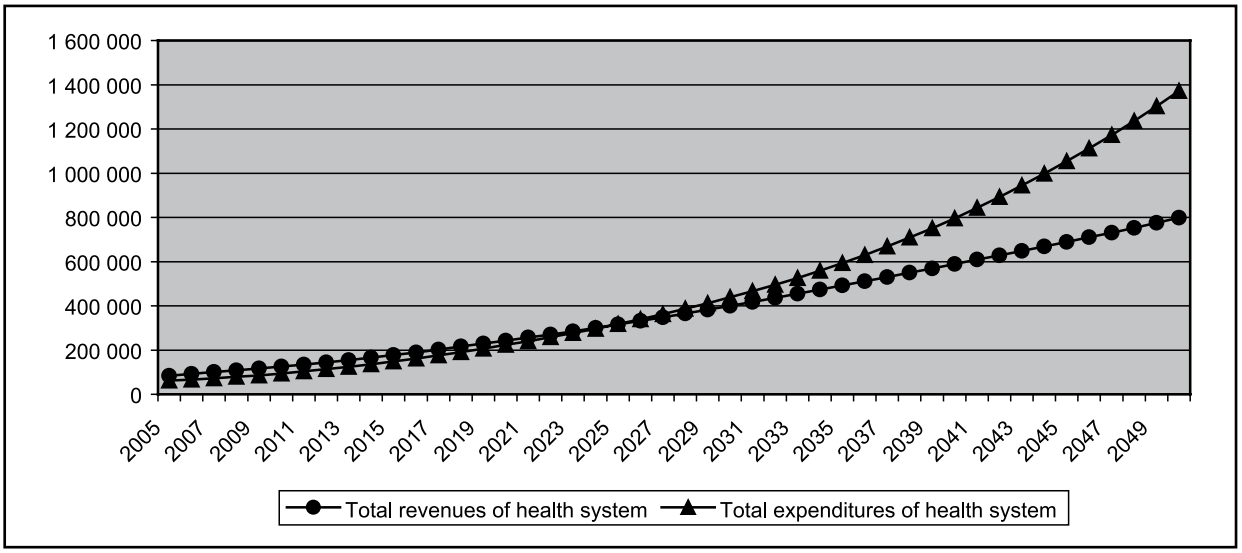
Table 1

Projection of health budget revenues and expenditures and health system deficit/surplus

	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Total health expenditures as share of GDP	4.8%	5.0%	5.1%	5.4%	5.6%	5.8%	6.1%	6.4%	6.6%	6.9%
Deficit/surplus of health system as share of GDP	1.5%	1.4%	0.8%	0.4%	0.0%	-0.4%	-0.9%	-1.4%	-1.9%	-2.3%
Deficit/surplus of expenditures and revenues of health system (mld.Sk)	22.1	31.9	28.7	19.7	-1.9	-38.7	-101.0	-207.1	-364.5	-573.8
Total health expenditures as share of total government expenditures	10.7%	10.9%	11.4%	12.0%	12.5%	13.0%	13.5%	14.0%	14.6%	15.1%
Total government expenditures as share of GDP	39.0%	38.2%	37.6%	37.4%	37.4%	37.3%	37.3%	37.2%	37.2%	37.2%
Total government deficit/surplus as share of GDP	-2.5%	-1.7%	-1.1%	-0.9%	-0.9%	-0.8%	-0.8%	-0.7%	-0.7%	-0.7%
Total government public debt as share of GDP	34.5%	32.2%	26.2%	22.4%	20.5%	19.4%	18.5%	17.6%	17.1%	16.9%

Graph 1

Comparison of the healthcare system's total revenues & expenditures (mil.Skk)



3.2.5. Sensitivity Tests and Scenarios

To more fully understand the mechanism within the health care system, sensitivity scenarios were made. The scenarios were based on possible deviations of wages and the employment rate compared to the baseline scenario.

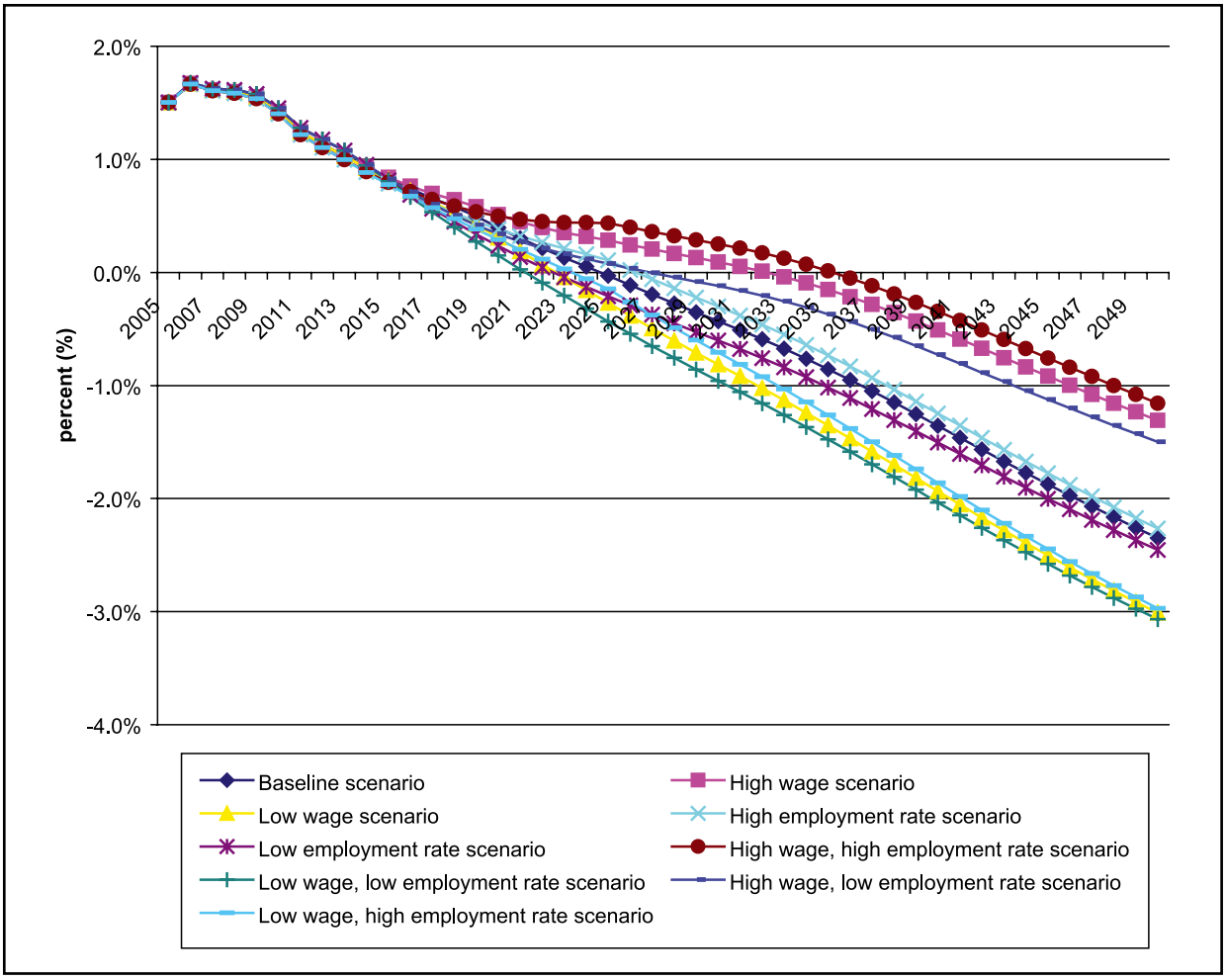
The scenarios were built up on different assumptions regarding the labor market and general economic trends. The scenarios present a comparison of the impacts of development in the economic environment to the sustainability of health care system. The baseline scenario presents the most-expected trend. The comparative scenarios present possible trends that are both optimistic and pessimistic in nature (see Graph 2).

3.2.6. Migration

The official demographic forecasts assume a net migration in 2050 of between 600 (the very low scenario) through 9000 (very high scenario) per year. The most probable development for the demographic forecast is the middle scenario assuming approximately 3000 persons per year in the year 2050. We assume that most of the immigrating (temporary or permanent) will be by people from younger age groups (25 – 45). Even then, the modelling results indicate changes on the level of the model's statistical error. We believe that migration will play only a marginal role with respect to health care financing.

Graph 2

Deficit (-), Surplus (+) of the healthcare system as a share of GDP



Conclusion

In our basic scenario we quantify the most probable development of revenues and expenditures in the healthcare system through 2050. The fundamental assumption based on this scenario is that until 2025 the healthcare system will have an accounting-derived surplus. After 2025 the system will began run a deficit with an average deficit of 1.2 % of GDP.

This development will be caused by lower dynamics of budget revenues and expenditures which is explained by the different dynamics of particular exogenous variables.

Revenues will have high growth dynamics in first decade, between 2006 and 2016. This development is due to high economic growth. After Slovakia's economy reaches a higher economic level in 2015, the dynamics of economic growth will decline and with the decline of the share of the workforce among the population, revenues for the health system will fall.

The high dynamics of healthcare expenditures are based on aging and this development will have its main impact on expenditures between 2015 and 2035. The actual healthcare contribution paid from gross wages is 14 %. To mark equilibrium in the healthcare budget the current rate might be 9 % and to 2050 it should be raised to 21 %.

In order to examine the deviation of key exogenous explanatory variables we have run some sensitivity tests. From these tests it emerged that the healthcare budget will sensitively respond to the development of aging of the public, wage growth and the employment rate. On the other hand, the response to different life expectations will be negligible.

The aims of this work were matched by the quantification of the basic scenario and by the sensitivity analysis on previously determined key variables from the area of demographic development and labor market.

Migration trends are a future development with high uncertainty. Key migration trends will be emigration from Slovakia to states with higher developed economies in the first decade. After the Slovak economy reaches a higher economic level, the trend might change and Slovakia will have immigration from less developed states. The weight of these effects will be based on the development of globalization processes within EU and other states and the mutual migration policy of the EU.

In the context of natural cyclical economic development, the labor market will also suffer with cycles. These cycles will influence revenues for the healthcare system. A solution might be the strengthening of state policyholders as an anti-cyclic factor for health revenues. Such questions are relevant topics for future research.

Alternative scenarios have shown that even under optimistic assumptions, the financing of the health care system is not sustainable in the long run. By the end of 2050 it will run a deficit at the level of 1.2 – 1.5 % of GDP. The analysis proved that the income of the system is the most sensitive to changes in the real wage compared with the change of employment rate. A one percentage point increase/ decrease of real wages leads to an approximately 0.6 – 0.7% of additional growth/ decline to income. However, a one percentage point change to the employment rate will cause only a 0.05% change. With the pessimistic scenario, the deficiency of the system will fall down to 3% of GDP. Migration will not play an important role in regard to the impact on the financing of the health care system.

3.3. Policy Recommendation

From an economic policy perspective it is necessary to conclude that after 2025 the healthcare system will suffer from a gradual deficit growth. It will be necessary to mitigate the factors that cause this, though it will not solve the problem completely. It will be necessary to raise contributions for healthcare from gross wages. It will even be necessary to raise other revenue sources for the healthcare system. An unavoidable result will be the financial partnership of the patient in healthcare to limit ineffective fund allocation.

The healthcare system is poorly reformed and therefore systematic changes are necessary in its functioning. The main goal of reform efforts might be an increase of the efficiency of the system with sustainability of budget boundaries. Systematic changes are necessary also in the administration and management of the healthcare system and in an organization directed to lower costs and rises in efficiency. Such factors might be prevention, long-term care, enlightenment and one-day surgery.

These activities will lead to the better health of the population as a whole and the rise of life expectancy. The main ethical purpose of the healthcare system will be achieved by those effects. Simultaneously, expenditures on healthcare will rise and its economic stability will suffer. The ethical focus of raising the health of population seems contradictory to the economic focus of stably funding healthcare. However, quantitative analysis has shown that this contradiction is not crucial in the development of expenditures. The rise of life expectancy leads only to a negligible rise of heath expenditures.

Opinions differ regarding the methods to raise the efficiency of healthcare. In Slovakia, the government of Mikuláš Dzurinda, began a fundamental healthcare reform. The main outlines of the reform were the introduction of market principles to healthcare and the creation of a competitive environment. The current socialist government of Robert Fico has different opinions on these questions. Their horizon for prognosis is 50 years and there is an essential rise of deficits that will begin after 2025. With such a long horizon in democratic states it is often the case that the government changes between left-wing and right-wing political parties, and this is the development shown in the Slovak Republic. Individual governments will be gradually confronted with the problems stated and in the long-term the task to tackle them in most efficient way will remain.

References

[1]PÁLENÍK, V.et all.: Mid-term Projection of Trends in Macroeconomic Development of the Slovak Health Sector, EMPA, Bratislava, 2005, 249 p.

[2]BORS, L. – KVETAN, V. – PÁLENÍK, V. – VOKUN, J.: Construction and Verification of Macroeconomic Model ISWE97q3. Ekon. čas/Journal of Economics, Vol 46 (1998), Nr. 3, pg. 428-466.

[3]PÁLENÍK, V. – KVETAN, V. – MLÝNEK, V. – MORVAY, K. – RADVANSKÝ, M.: Prognóza vývoja ekonomiky SR a vybraných okresov do roku 2013.Ekonomický ústav SAV EŠ 1, Bratislava 2006, 66 p. (Available for downloading from www.ekonom.sav.sk).

[4]KVETAN, V. – PÁLENÍK, V.: Health and Morbidity in the Accession Countries Country Report – Slovak Republic. ENEPRI Research Report Series no. 30,Centre for European Policy Studies, Brussels 2006, 68 p (Available for downloading from http://shop.ceps.be).

[5]KVETAN, V – PÁLENÍK, V. – MLÝNEK, M. – RADVANSKÝ, M.: Health Expenditure Scenarios in Slovakia. ENEPRI Research Report Series, Centre for European Policy Studies, Brussels 2007, 34 p (on printing).

SIMULATIONS OF PRICE AND SUPPLY SHOCKS ON THE ECONOMY WITH THE CGE MODEL

Viliam PÁLENÍK, Martin MLÝNEK, Lucia PÁNIKOVÁ

Introduction

Computable General Equilibrium (CGE model) models are widely used in policy analysis, especially in developing countries and countries that lack consistent time series for econometric modelling and analysis. Over the past 25 years the development of models and the increasing power and reliability of microcomputers as well as the development of software has led to significant changes in the way that quantitative policy analysis is conducted. This paper aims to quantify the impact of non-marginal one-time supply or price shocks on an economy. Quantification was made on a CGE model, based and calibrated on the Slovak Social Accounting Matrix (SAM) for the year 2000. The model is programmed in the GAMS software, which has been developed to solve nonlinear problems and problems of complementary programming into which systems of equations can be transformed.

The rest of the paper proceeds as follows. Section II is focused on the description of the model and the SAM matrix. In Section III we will shortly discuss supply and price disturbances and their possible impact on an economy. In Section IV, we will focus on quantitative outcomes of the model, simulations and the interpretation of the simulation results. Section V summarizes the results of this work.

4.1. CGE Model

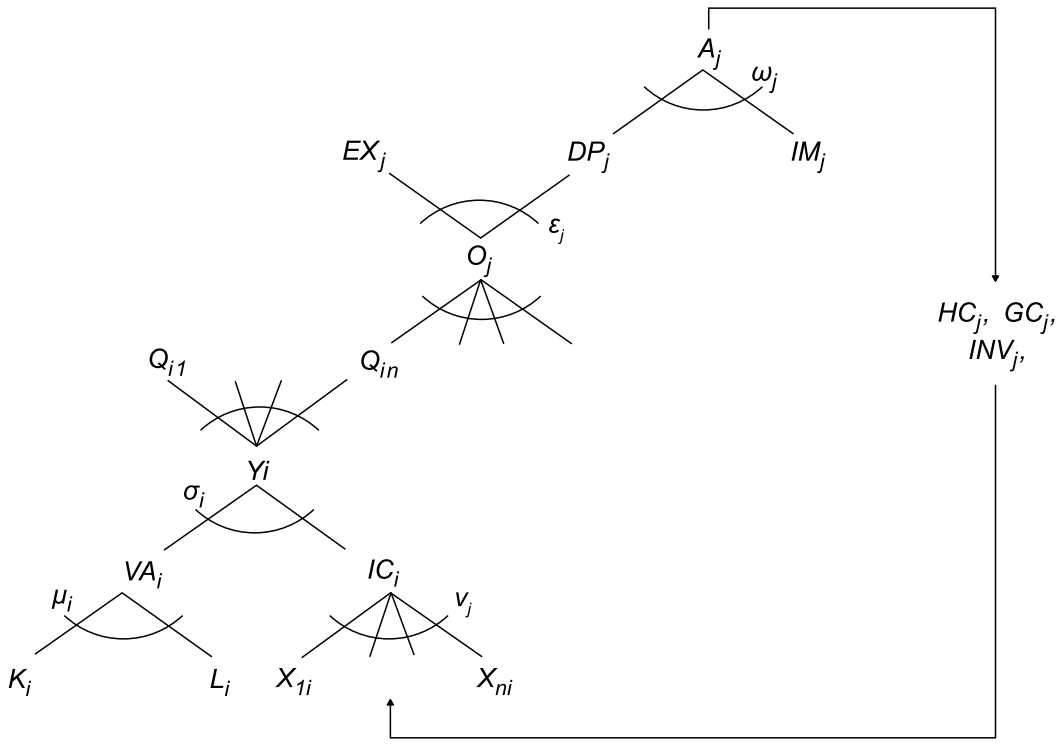
The CGE-SK-EI07S Computable General Equilibrium model was developed by Martin Mlýnek and Lucia Pániková, with assistance from other members of the research team. It is a standard static CGE mode. The main purpose of the model is to analyze the impact of a one time exogenous non-marginal shock on the economy. In this research, the model was modified in order to quantify changes in import prices that lead to a shock in the economy, especially in the energy sector, and supply disturbance quantifications in this sector. The model is based on neo-classical economic theory and on the assumption of perfect competition.

4.1.1. Model Structure

The model consists of several equation blocks such as those of production, consumption and income distribution. Production is based on a nested production function and it is possible to choose among Leontieff (L), Cobb-Douglas (CD) and Constant Elasticity of Substitution (CES) production functions. Consumption is based on the Cobb-Douglass utility function for households and the Leontieff utility function for the government. The model structure is shown in Schema 1.

Schema 1

Structure of a static CGE model



<u>*Key to the symbols used:*</u>

- K_i – *Capital*
- L_i – *Labor*
- VA_i – *Added value*
- $X_{1i} – X_{ni}$ – *Intermediate consumption by sector*
- IC_i – *Intermediate consumption*
- Y_i – *Output, Production*
- $Q_{i1} – Q_{in}$ – *Comodities*
- Oj – *Total production (Commodities)*
- EX_j – *Export*
- DP_j – *Domestic supply*
- IM_j – *Import*
- A_j – *Commodities for domestic market, Armington aggregate*
- HC_j – *Final consumption of households*
- GC_j – *Final consumption of government*
- INV_j – *Investment*
- ϖ_j, ε_j, σ_j, μ_j – *weights*

Production is divided into two levels, with the upper level of aggregate output based on either the Leontieff production function or on the Cobb-Douglass production function. Intermediate consumption and added value are aggregated on this level. The choice of a particular shape of a production function is based on the assumption of whether the given goods are supplements or complements. For different sectors of the economy, the elasticity of substitution has to be estimated by the econometric method, and then one of the possible production functions has to be used to aggregate added value and intermediate consumption. From our experience and empirical analysis we know that there is some legitimacy in the use of the C-D production function – especially in sectors of industry and construction – with an elasticity of substitution equal to one, but for most other sectors, there is no ability to substitute the inputs and therefore a Leontief production function equal to zero must be used.

The lower level of production functions represents an aggregation of labor (L_i) and capital (K_i) as inputs for added value and individual commodities as inputs for the intermediate consumption aggregate. Labor and Capital are modelled by the Cobb-Douglass production function or by the CES production function. For most of our analysis and in this project as well, the CES production function with an elasticity of substitution ranges between zero and one was chosen. The aggregation of intermediate consumption is estimated by the Leontieff production function.

International trade is modelled by the Armington concept. That means that on one side the total output (Oj) of the economy is divided into commodities for export (EX_j) and for the domestic market (DP_j). For this concept, a constant elasticity of transformation function (CET) is appropriate. On the other side, imports (IM_j), with commodities expendable for the domestic market (DP_j) are aggregated using the CES function. This approach simply meets the needs of foreign trade modelling.

The final consumption of households is modelled by maximizing the Cobb-Douglass utility function under the budget constraints. This consists of the income of households - mainly wage income, social benefits and income from capital ownership. On the basis of maximizing Marshal Demand functions and the given constraints, the demand after commodities is derived.

Government's final consumption is modelled by maximizing the Leontief utility function under the budgetary constrains. Under this conditions demand functions for commodities are derived.

Investment is represented by demand after capital. Demand is similarly derived from maximizing the Cobb-Douglas utility function under the budgetary constrains as in households. Households are the assumed owners of investment sources, from which they have annual revenues from enterprises. Investments are formed by enterprises and are accounted from substitution changes.

Model closures are based on economic theory and the aim of the work. If the number of equations is different from the number of endogenous variables, it is necessary to "close"[35] the model in such way that the number of equations and variables will be equal. In order to do this, it is possible to use one of the settings shown in Table 2 or a mixture of these closures.

Table 2

Closures of model for different economic agents

	Classical	***Keynesian***	***Johansens***	***Kaldors***
Investment	Endogenous	Exogenous	Exogenous	Exogenous
Government consumption	Exogenous	Exogenous	Exogenous	Exogenous
Labor market equilibrium	Holds	Does not hold	Holds	Holds
Transfers from households to enterprises	Null	Null	Null	Non Zero

4.2. Supply and Price Disturbances

4.2.1. Price and Supply Disturbance

Price policy plays an important role in supporting the policies and programs of economic development. If a price increase is too high, it may happen that the given production sector will behave monopolistically, which will lead to obstacles and economic unbalance. Likewise, unnecessary government interference in a market price disturbance can be counterproductive and worsen a situation. Such changes might have a devastating effect on an economy, from short fluctuations to depression. A supply disturbance, such as the oil crises of 1973 and 1979, has significant effects on long term production and price stability. As many studies shown, both disturbances – price and supply disturbances, can be observed by econometric estimations and SVAR analysis. It is necessary to know how an economy will react to such changes and how it will adapt to their impact. For this reason we have created a CGE model to quantify the results of a supply or price disturbance.

35

4.3. Model Simulation and Results

All simulations where made with same version of the model, although for different scenarios different model closures were adapted where needed. Scenario A simulates a one-time price disturbance of the world import price of energy products, in which oil products represent more than 50 percent. In Scenario B a simulation of a one-time disturbance of world import prices of all products is quantified. In Scenario C a one time disturbance of a share of energy products in the Armington aggregate is simulated and in the last scenario, Scenario D, a one time decrease of energy product imports is simulated.

4.3.1. Scenario A

This scenario aims at quantifying a one time disturbance or shock in the import price of crude oil, oil products, gas and other energy raw materials and products. The setting of the scenario is that the world import price of energy products for the domestic economy will rise by 50 percent. This disturbance is applied only to the energy sector and import prices for other sectors remained the same. The results of the simulation are shown in **Table 3**:

Table 3

	GDP real	Production	Exchange rate	Wage	Unemployment	PIC[37]	PP[38]	PEX[39]	PIM[40]
Baseline	936,1	2260,4	1,000	0,138	492,9	1,000	1,000	1,000	1,000
Scenario A	838,1	1780,9	1,021	0,107	124,1	1,459	1,416	1,021	1,531
Change (%)	-10,5%	-21,2%	2,1%	-23,0%	-74,8%	45,9%	41,6%	2,1%	53,1%

As the table shows, the result of such a disturbance would be the sharp drop of real Gross Domestic Product and total production. Also, this will lead to a minor depreciation of the exchange rate. Overall, the cost of imports will rise more than 50% and the prices of intermediate production and total production will rise by 45,9% and 41,6% respectively, in the long term. The total cost of labor and wages will drop significantly, which is due to the optimizing behavior of firms and producers.

Overall, the economy will suffer a depression and the new equilibrium state will be achieved under a sharp drop of production and higher price levels, although it its possible that unemployment will drop.

4.3.2. Scenario B

Scenario B represents the impact of a rise of import prices on the economy. Unlike in Scenario A, the rise of import prices is applied on all products and goods. The total rise of prices is 7% and its impact on the economy is shown in **Table 4**:

37 *PIC – price of intermediate consumption*
38 *PP – price of production*
39 *PEX – price of export*
40 *PIM – price of import*

Table 4

	GDP real	Produc-tion	Exchange rate	Wage	Unemployment	PIC	PP	PEX	PIM
Baseline	936,1	2260,4	1,000	0,138	492,9	1,000	1,000	1,000	1,000
Scenario B	958,4	2255,1	1,010	0,123	249,7	1,090	1,129	1,010	1,080
Change (%)	2,4%	-0,2%	1,0%	-11,4%	-49,3%	9,0%	12,9%	1,0%	8,0%

The total rise of import prices will result in a minor rise of Gross Domestic Product but with a small drop of total production. Also, the exchange rate will suffer a minor depreciation. Wage costs will drop significantly as well as wages. This is due to the optimizing behavior of firms and producers, like in Scenario A. Also, the price level for intermediate consumption and production will rise sharply in the long term. Total unemployment will drop significantly as in Scenario A due to the behavior of households that are trying to remain on the same level of earning although the average wage drops.

Overall, a new equilibrium will be found under the higher price level and lower unemployment.

4.3.3. Scenario C

While first two scenarios, Scenario A and B, simulated price disturbances, this scenario and Scenario D focus on quantifying supply disturbances. A supply disturbance is represented by a change of the weight of imports in Armington, which implies a change of total domestic supply. While in the baseline scenario the weight of imports incoming into Armington is 75,84%, in Scenario C this weight is reduced to only 1%. Then the total domestic supply of crude oil, oil products, gas and other energy raw materials and products is reduced to less than one third. The outputs of this simulation show that in the long term economy, they will be able to substitute these losses and create a new equilibrium, as shown in **Table 5**:

Table 5

	GDP real	Produc-tion	Ex-change rate	Wage	Unemployment	PIC	PP	PEX	PIM
Baseline	936,1	2260,4	1,000	0,138	492,9	1,000	1,000	1,000	1,000
Scenario C	750,2	1548,0	0,985	0,174	1050,1	0,830	0,868	0,985	0,985
Change (%)	-19,9%	-31,5%	-1,5%	26,0%	113,1%	-17,0%	-13,2%	-1,5%	-1,5%

Overall, the domestic supply of energy products, especially crude oil, gas and oil products, will fall to 52.9% of the baseline value. The real Gross Domestic Product of the economy will fall by nearly 20% and production by more than 30%. The total cost of labor will rise significantly due to the structural changes in the economy and labor-intensified production. Labor acts as a main substitute for the loss of the intermediate products from the energy sector, but also since the economy will suffer from deflation as well, unemployment will rise. The long term price of intermediate products and production will fall significantly, 17% and 13.2% respectively. Long term export and import prices will change insignificantly and it is highly probable that they will remain on same level, although the new equilibrium shows a minor drop in these price levels as well as a small appreciation of the exchange rate.

As a result of this simulation, it is obvious that after a supply disturbance of this magnitude, with a drop in energy supplies, the economy will fall into a long depression and the economy will converge to a new equilibrium under significantly lower gross domestic products and overall production, as well as under higher wages and a fall in the price level of intermediate consumption and production. The price level of energy products and energy intermediate production will drop insignificantly and it is highly probable that they will remain on the same level.

4.3.4. Scenario D

This scenario represents the probable behavior of the economy if it suffers from an import disturbance of significant magnitude. Unlike in the previous scenario, the disturbance in Scenario D is a total drop of energy imports leading to a total drop of domestic supplies of energy products by 40.1 % in the long term. The results for the simulations are shown below in **Table 6**:

Table 6

	GDP real	Produc-tion	Ex-change rate	Wage	Unemploy ment	PIC	PP	PEX	PIM
Baseline	936,1	2260,4	1,000	0,138	492.9	1,000	1,000	1,000	1,000
Scenario D	772,5	1655,4	0,997	0,170	986.8	0,999	0,999	0,997	0,997
Change (%)	-17,5%	-26,8%	-0,3%	23,1%	100,2%	-0,1%	-0,1%	-0,3%	-0,3%

The economy will converge to a new state of equilibrium under different conditions than in Scenario C. As in Scenario C, the economy will suffer from a depression, but overall prices will remain at the baseline level except for wage-related costs and prices. The new equilibrium will be achieved under a 17.5% drop of Gross Domestic Product and a 26.8% drop of total production in the economy. As in scenario C, the total labor cost and wages will rise significantly. Since the economy might not suffer from deflation at the same time, the impact on overall unemployment might not be as intensive as in Scenario C. The main difference is that prices will remain at same level as in the baseline model, and only minor changes should be expected. This is due to the fact that the weight of imports will not change in the Armington aggregate and while total supply will drop, its structure will remain the same and more than 75% of the total domestic supply of energy products will be imported.

As a result of this simulation, it is obvious that after such a supply disturbance the economy will fall into a long depression and economy will converge on a new equilibrium under significantly lower gross domestic products and overall production and under higher wages. Even though the levels of imports will drop, one should not expect a drop in prices as most energy products will be imported. Instead of this, it is highly probable that intermediate production prices and production prices will remain at the same level.

Conclusion

Price or supply disturbances will have a significant effect on economic development. The most probable outcome of these disturbances is that the economy will fall into a depression that will result in a drop of unemployment under inflation or a rise of unemployment under deflation. It seems that the most devastating effect on the economy would be from a supply shock, or a disturbance where the economy will be cut of from foreign supplies of crude oil and other energy raw materials as seen in Scenario C. This disturbance would lead to a depression with high unemployment and deflation. On the other hand, a price disturbance in the energy sector would also lead to a drop of GDP and to a permanent rise of price levels, although it might not lead to unemployment.

These scenarios have to be comprehended only as a key to further analysis and as a key to understanding the process and economic reaction policy to a disturbance or shock.

References

1. Blanchard, O. J. – Quah D.: The Dynamic Effects of Aggregate Demand and Supply Disturbances, The American Economic Review, September 1989.

2. Lucas, R. E. Jr.: Inflation and Welfare, Econometrica, Vol. 68, No. 2, Mar. 2000, pp. 247 – 274.

3. Review of the Recent CGE Applications in the Slovak Republic's economy, V. Páleník, M. Kotov, J. K. Bunta, ISWE SAV, Bratislava.

4. Bakosová, K. – Kvetan V. – Mlýnek, M. – Páleník, V.- Radvanský M. – Sekeres S.: Hodnotenie fiskálnych dopadov zavedenia systému odvodového bonusu , Ekonomický ústav SAV, marec 2006, 44s.

MUNDELL – FLEMING MODEL FOR UKRAINE

Viliam PÁLENÍK, Lucia PÁNIKOVÁ

Introduction

Ukraine belongs to a block of counties that is passing through a transformation. The process of analyzing its conversion from centrally planned control to market principals can be done given a set of assumptions and models. First, we need to we assume that the market direct economy system is described by standard macroeconomic models. Following quantitative verification and analyses we examine the economy's behavior through an observed period of time. For a theoretical basis we use the enlarged IS – LM Mundell – Fleming model for an open economy. This model is widely used by developed countries.

In the first part of this work is a description of the Mundell – Fleming IS – LM model with structural dependencies. In the second part the behavior of the Ukrainian economy from 1995 – 2005 is examined. In the third part, a mathematically analyzed model with concrete data and quantitatively and qualitatively evaluated impacts of fiscal and monetary policy is given. The last part covers the main conclusions implied from the model.

5.1. Model Description

The Mundell - Fleming model is an economic short run describing model first set forth by Robert Mundell (1962, 1963) and Marcus Fleming (1962) while at the International Monetary Fund (IMF). The model is an extension of the IS-LM model[41]. Whereas IS-LM deals with a command economy, the Mundell - Fleming model tries to describe an open economy by incorporating external trade. It is based on Keynesian principals that describe demand after particular real output aggregates. In general, it is a system of two endogenous variables represented by real income and nominal interest rate, where the equilibrium value lies on the intercept of two curves: Investments and Savings, IS, and Liquidity and Money, LM (under standard assumptions).

5.1.1. Capital Market

Aggregate demand Y, which expresses real GDP in constant prices, is represented by the sum of domestic demand DD and net export NX:

$$Y = DD + NX$$

Domestic demand consists of real private sector consumption C, real private sector investments I and real government expenditures G, which holds to be exogenous in our model:

$$DD = C + I + G$$

Net export describes the real trade balance between Ukraine and rest of the world:

$$NX = EX - IM$$

Where the variable EX expresses a real value of exported goods and services from Ukraine and the variable IM is a real value for imports to Ukraine.

In general the real output of the economy, known also as the IS curve, is defined as:

$$Y = C + I + G + (EX - IM)$$

41 *Discussion about the enlargement of standard IS – LM model for a closed economy: MANKIW, 1997, s. 248 - 331*

IS Components

For the quantitative analyses we need to specify function dependencies for the endogenous variables. In this study we assumed linear dependencies.

In the equation for household final consumption expenditure C we consider the positive dependency on real income Y only, without any respect for taxes charged. As a result of price and other qualitative shocks during the transformation process, people generally consume their income in order to maintain their living standards. This fact implies the following linear shape of the consumption function:

$$C(Y) = a + bY$$

where parameter *a* is autonomous consumption and *b* is a marginal addiction to consumption.

In the real investment function the real interest rate of lending r plays a role adjusted for inflation and level of real GDP Y.

$$I(r, Y) = c - d_1 r + d_2 Y$$

Parameter *c* expresses the amortization of capital formation; parameter d_1 describes the change of real interest rates on gross capital. We expect a negative influence on gross capital, because with interest rate growth, loans become more expensive, which implies a drop in investment interest. Parameter d_2 is marginal addiction to investments, which represents additional investments with increased income.

For exports and imports the most important factor is the progress of world economies and the real exchange rate. Exports of goods and services rely on real exchange rate ε, which consists of an inverse shape of the nominal exchange rate multiplied by appropriate price levels:

$$\varepsilon = e\frac{P}{P*}$$

where *e* is the number offoreign units which we can buy for one unit of domestic currency. *P* is then the domestic price level and *P** the foreign price level. The exchange rate defined in this way enables an expectation of the negative influence on exports. Another parameter in the export equation is foreign demand FD, which is expressed by weighted imports of Ukraine's major trade partners. With imports increasing, exports from Ukraine rise.

$$EX(\varepsilon, FD) = l_1 - l_2\varepsilon + l_3 FD$$

Parameter l_1 is the value of autonomous exports, parameter l_2 describes the changes of the exports interacting with the real exchange rate and parameter l_3 is Ukraine's sensitivity to the trade partner's imports.

Imports are influenced positively by real exchange rate ε and level of real gross domestic product Y. The parameters then express, as in the export equation, autonomous imports; change to imports interacting with the real exchange rate and the growth of imports by the additional growth of real GDP Y.

$$IM(\varepsilon, Y) = m_1 + m_2\varepsilon + m_3 Y$$

Final aggregate demand has the following shape:

$$Y = C(Y) + I(r, Y) + G + NX(\varepsilon, FD, Y)$$

5.1.2. Money Market

Another curve which we consider in our model interprets the equilibrium in the money market. Demand after real money balances is dependant on aggregate demand Y, defined in the capital market, and nominal interest rate i characterizing the price of money.

LM Components

The functional dependency is linear as well. Parameter *h* describes the autonomous demand for money – the amount of money in the economy without respect to its working. An increase of money in the economy induced by a positive change of real GDP Y of about one million Ukrainian Hryvnias is determined by parameter *g*. A negative reaction after money demand, which we can expect with nominal interest rates moving, is included in parameter *f*.

$$L(i,\ Y) = h\ +\ gY - fi$$

5.1.3. IS – LM Model

Now we get a complete IS – LM model describing an open economy:

$$\left.\begin{array}{lll}
\text{(IS)} & Y & = C\ (Y) + (r,\ Y) + G + NX\ (\varepsilon,\ FD,\ Y) \\
\text{(LM)} & M/P & = L\ (Y,\ i) \\
 & r & = i - \pi \\
 & & \\
 & C(Y) & = \alpha + bY \\
 & I(r,\ Y) & = c + d_1 r + d_2 Y \\
 & NX\ (\varepsilon,\ FD,\ Y) & = EX\ (\varepsilon,\ FD) - IM\ (\varepsilon,\ Y) \\
 & EX\ (\varepsilon,\ FD) & = l_1 + l_2\,\varepsilon\ + l_3\,FD \\
 & IM\ (\varepsilon,\ Y) & = m_1 + m_3\,\varepsilon + m_3 Y \\
 & L(Y) & = h + gY - fi
\end{array}\right| \qquad \text{(Model A')}$$

5.2. Data

We collected data for Ukraine from 1993 – 2005. Considering the inconsistency in data in the beginning of the transformation process (1993 – 1994) caused by extremely high inflation (see annual growth in Table 2), we analyse the time series only from 1995. Data and their annual growths are seen in the Tables listed on the next page (*Table 1*, *Table 2*). Data needed for computing the value of foreign demand FD are enclosed in Appendix 1 (*Table 4*) as well as source of the data with the data description (*Table 3*).

Table 1:

Used data

Series	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Y	347 334,48	267 676,65	235 020,09	211 518,08	205 172,54	201 274,26	200 871,71	212 723,14	232 293,68	244 372,95	267 344,00	299 692,62	307 484,62
C	136 804,63	124 681,09	122 559,89	111 185,78	110 893,62	112 751,35	110 437,74	113 076,93	123 309,01	134 464,91	150 793,99	172 659,13	200 629,91
G	64 042,00	56 256,65	51 812,37	49 014,51	47 887,17	46 211,12	42 560,44	42 986,05	47 456,60	44 277,00	50 830,00	53 574,82	55 021,34
I	116 400,05	68 633,92	47 496,67	36 724,06	37 482,84	38 466,63	38 505,09	43 164,21	53 289,06	52 489,72	58 7 36,00	57 970,45	59 388,06
EX	84 002,70	92 738,99	93 759,11	109 604,41	103 685,77	104 929,99	102 621,54	124 685,16	128 301,03	139 976,43	154 394,00	175 700,38	156 021,93
IM	79 376,58	107 872,78	102 910,63	119 170,51	113 688,67	115 962,44	96 596,71	119 586,73	122 217,64	126 739,69	147 524,99	160 212,16	163 576,61
M2	481,46	3 215,69	6 929,96	9 364,40	12 540,78	15 556,19	21 868,82	31 610,28	45 185,79	64 394,57	94 603,29	125 483,33	193 145,26
P	0,00427	0,04497	0,23196	0,38540	0,45506	0,50972	0,64938	0,79949	0,87902	0,92404	1,00000	1,15059	1,38134
ε	60,37	85,02	99,45	119,14	140,98	128,70	101,47	100,00	111,20	107,09	98,26	96,18	106,01
r	-91,72	-66,75	-56,83	8,27	26,29	37,93	21,63	14,96	20,31	19,24	8,94	2,04	-3,23
i	184,25	250,28	122,70	79,88	49,12	54,50	54,95	41,53	32,28	25,35	17,89	17,40	16,17
FD	6 256,02	13 820,40	26 099,92	24 006,40	19 762,01	20 647,50	16 939,25	24 723,95	27 878,06	25 934,26	31 395,41	36 017,02	43 023,24

Table 2:

Annual growths

Series	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Y	-14,23%	-22,93%	-12,20%	-10,00%	-3,00%	-1,90%	-0,20%	5,90%	9,20%	5,20%	9,40%	12,10%	2,60%
C	-25,96%	-8,86%	-1,70%	-9,28%	-0,26%	1,68%	-2,05%	2,39%	9,05%	9,05%	12,14%	14,50%	16,20%
G	0,11%	-12,16%	-7,90%	-5,40%	-2,30%	-3,50%	-7,90%	1,00%	10,40%	-6,70%	14,80%	5,40%	2,70%
I	-30,53%	-41,04%	-30,80%	-22,68%	2,07%	2,62%	0,10%	12,10%	23,46%	-1,50%	11,90%	-1,30%	2,45%

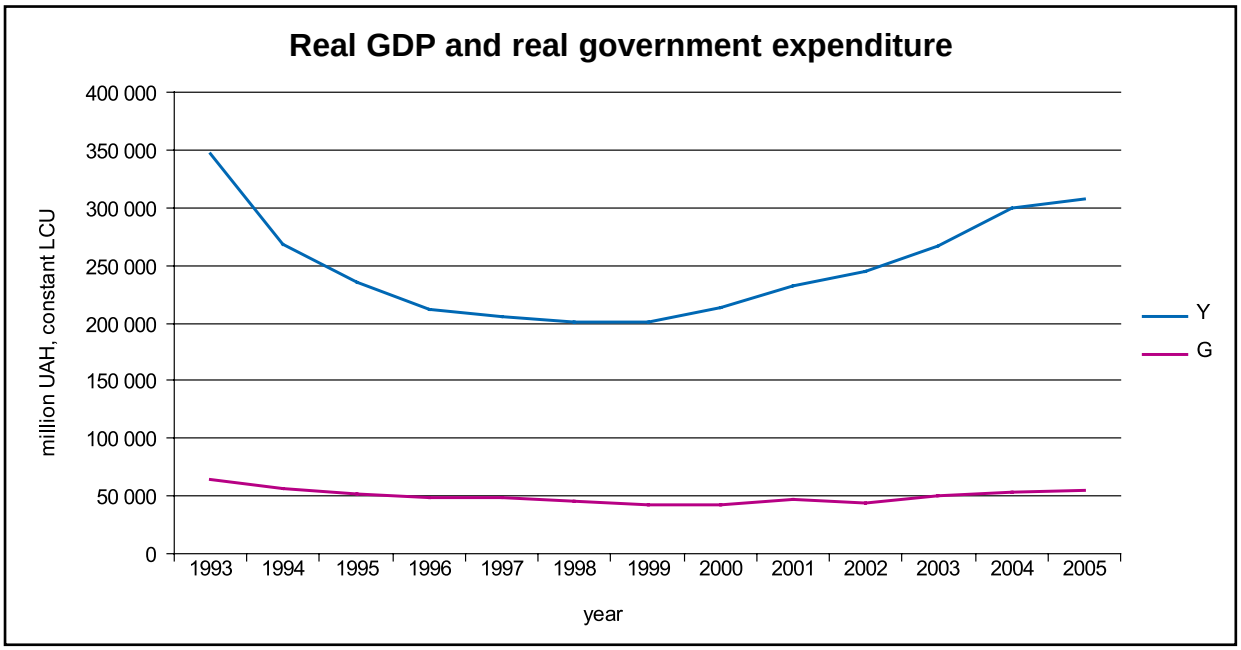
Series	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
EX	-10,80%	10,40%	1,10%	16,90%	-5,40%	1,20%	-2,20%	21,50%	2,90%	9,10%	10,30%	13,80%	-11,20%
IM	-34,70%	35,90%	-4,60%	15,80%	-4,60%	2,00%	-16,70%	23,80%	2,20%	3,70%	16,40%	8,60%	2,10%
M2	1809,15%	567,91%	115,50%	35,13%	33,92%	24,04%	40,58%	44,54%	42,95%	42,51%	46,91%	32,64%	53,92%
P	3334,80	953,46	415,81	66,15	18,07	12,01	27,40	23,12	9,95	5,12	8,22	15,06	20,06
ε	-56,45%	40,82%	16,97%	19,80%	18,33%	-8,71%	-21,16%	-1,45%	11,20%	-3,69%	-8,25%	-2,11%	10,21%
r	...	-27,23%	-14,87%	-114,55%	217,97%	44,26%	-42,98%	-30,85%	35,81%	-5,26%	-53,54%	-77,22%	-258,78%
i	...	35,84%	-50,98%	-34,90%	-38,51%	10,95%	0,84%	-24,43%	-22,27%	-21,47%	-29,41%	-2,76%	-7,05%
FD	84,41%	120,91%	88,85%	-8,02%	-17,68%	4,48%	-17,96%	45,96%	12,76%	-6,97%	21,06%	14,72%	19,45%

5.3. Monetary and Fiscal Policy

According to the data in the period examined we can analyze the impact of monetary and fiscal policy on output.

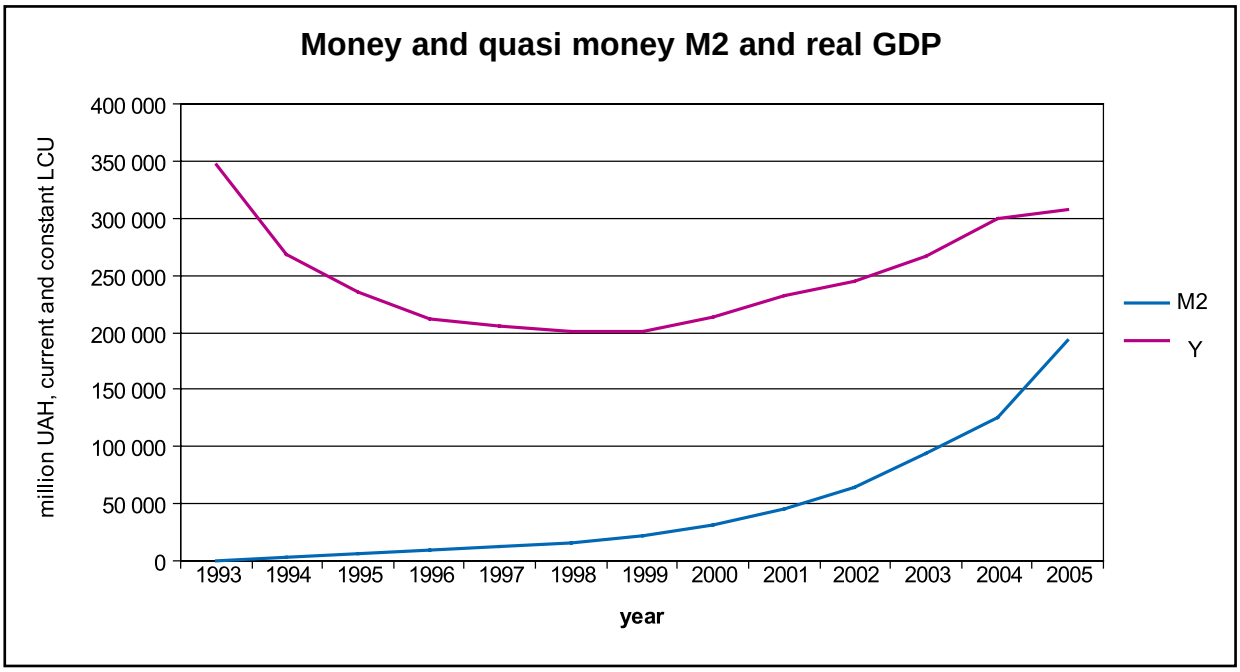
The diminishing of general government expenditure G in the first decade indicates the restrictive character of fiscal policy (see Graph 1). It was one of the sources of output decreases from 1993 to 1999. Over 2000 to 2005 one sees the characteristics of an expansive fiscal policy in that government expenditures G were increasing, which apart from others caused an output increase. There is an exception in 2002, as government expenditures decreased. This decrease did not cause a decrease of output Y, but negatively affected economic growth (see Table 2, lines Y and G in 2002). It can be observed that the fiscal policy characteristics in Ukraine had impacts on output as expected by economic theory. This impact was more than proportional and was acting in tandem with other factors.

Graph 1: Development of Real GDP and Real Government Expenditure



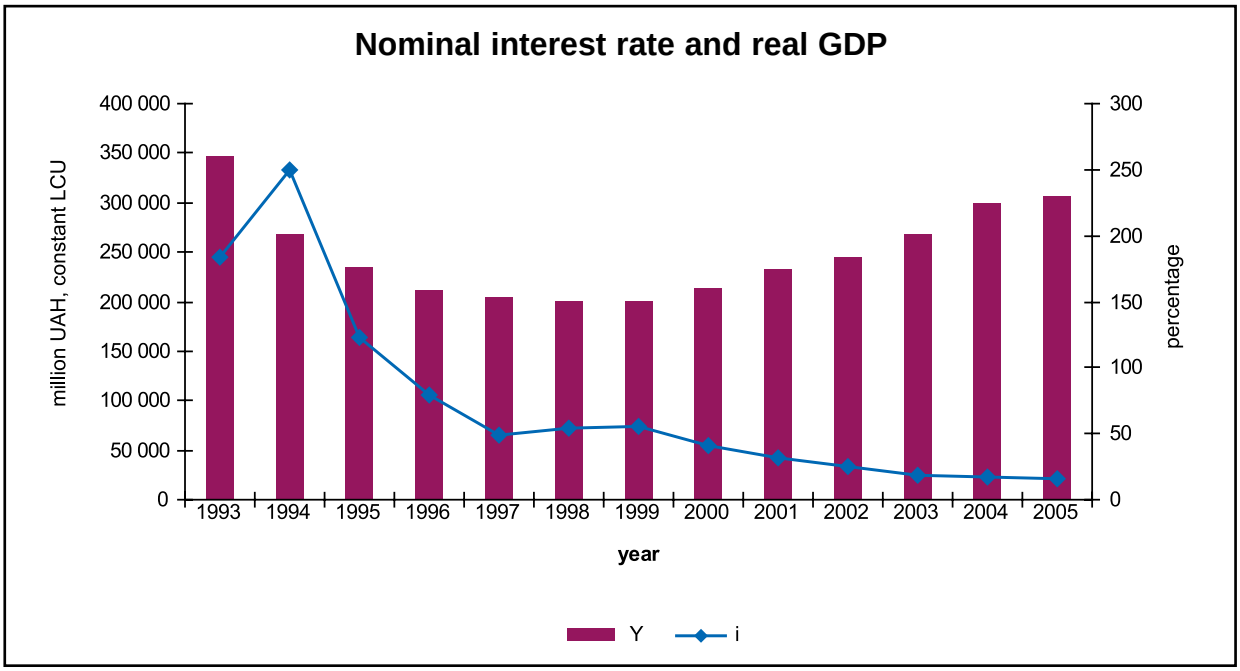
Graph 2 shows the relation between money supply M2 and output Y. From 1993 to 1999 there was an expansive monetary policy with increasing money supply M2 and a decrease of output Y. This is not as expected by economic theory and it could have been caused by the transitions in the economy or by other factors. In 2000 to 2005, an expansive monetary policy lead to output increases as expected by economic theory. This increase was less than proportional.

Graph 2: Development of Money and Quasi-money M2 and Real GDP



The relationship between the nominal interest rate and output growth is shown on Graph 3. Generally, the expected impact of decreasing interest rates caused by expansive monetary policy on increasing economic output is confirmed (see Table 1 rows Y and i).An exception is 1994, which is a sign of economic reform. In 1997 to 1999, there was a stagnation of interest rates and stabilization of output.

Graph 3: Development of Nominal Interest Rate and Real GDP

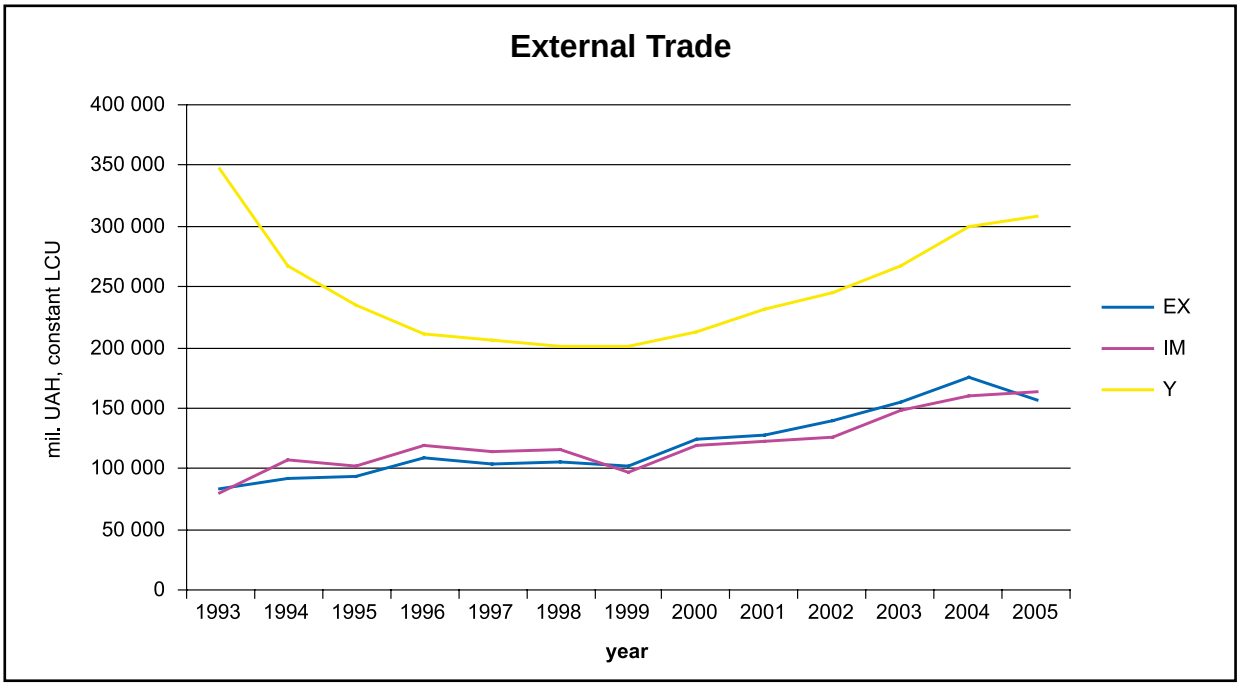


From 2000 to 2005, money supply M2 and the interest rate, as indicators of monetary policy characteristics, caused expected changes in the output of Ukraine's economy.From 1993 to 1999, this impact was either influenced by transformation processes or overrun by other factors and therefore was not acting in the expected fashion.

5.4. External Trade

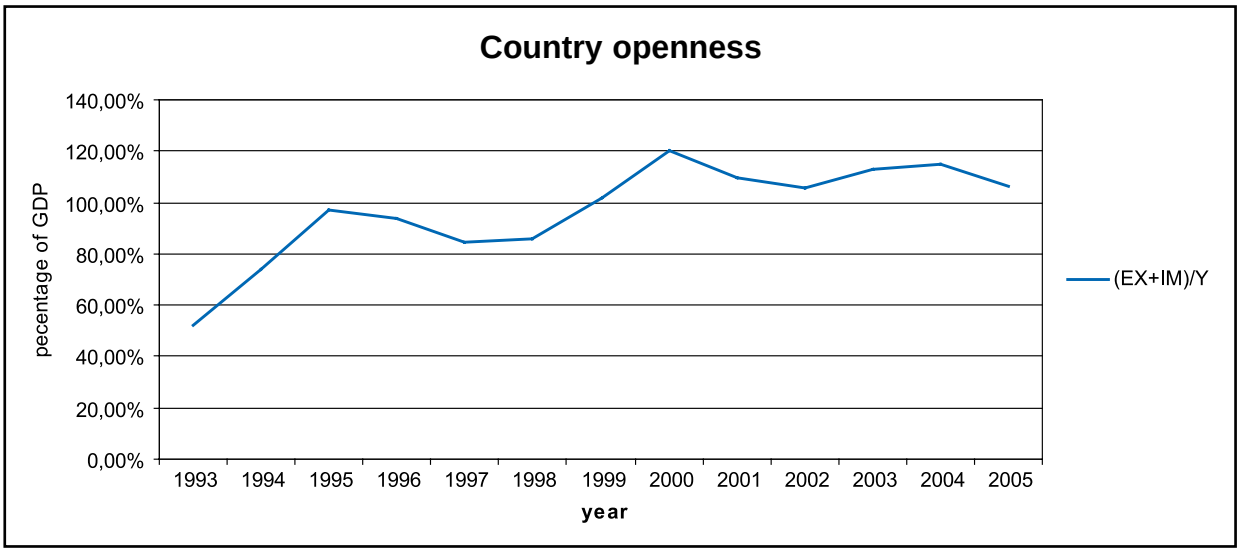
External trade was balanced over the observed period, which represents comparable levels of exported and imported goods and services. However, in the second decade (from 1999) exports exceed imports, which implies a positive trade balance for Ukraine (see *Graph 4*).

Graph 4: External Trade for Ukraine



When we compare the nominal sum of imported and exported goods and services to aggregated demand in economy, we can see that Ukraine became more open to the rest of the world by the positive trade balance which formed in 1999 and breached the 100% mark (see *Graph 5*).

Graph 5: Open Economy of Ukraine



5.5. Qualitative and Quantitative Analysis

After defining the IS – LM Mundel – Fleming model for an open economy, we verified our hypothesis of a standard working economy on particular Ukrainian data. Next, we consider the OLS (Ordinary Least Squares) concept for the parameters, as it is a tool used worldwide for regression analysis. This method can establish that a set of independent variables explains a proportion of the variance in a dependent variable at a significant level, with the standard used at α = 0.05, (through a significance test of R^2), and can establish the relative predictive importance of the independent variables (by comparing parameter weights). By testing Ukrainian data we get the following results (*Table 5*):

Table 5

Parameter Estimations for Model A (period 1995 – 2005)

	Constant	***Y***	***r / i***	***ε***	***FD***	***R2***
C(*Y*)	-47 289,53	0,76	-	-	-	0,94
	0,010946	0,000001				
I(*Y,r*)	-4 538,47	0,22	9,32	-	-	0,83
	0,631094	0,000357	0,875279			
EX(*ε,FD*)	84 453,31	-	-	-271,87	2,68	0,69
	0,189097			0,532765	0,009449	
IM(*ε, Y*)	-52 713,67	0,59	-	353,95	-	0,87
	0,224598	0,000129		0,163653		
L(*i,Y*)	-122 185,73	0,83	-338,08	-	-	0,97
	0,000285	0,000003	0,004754			

Values of R squared close to 1 in every equation confirm the relevancy of the model. The green color confirms the significance of the estimated parameters in model A. The red color has the opposite meaning. Where the real GDP Y was not significant for the equation, the real effective exchange rate ε was not significant at all. This paradox identifies that the Ukrainian economy was not developing according to theory. On the other hand, it is interesting that the equation of money demand is significant, which implies that the central bank was fully using its monetary tools for stabilizing the situation within the country.

New curtail model B consists only of parameters expressing the Ukrainian economy in the indicated way:

Now we get a complete IS – LM model describing an open economy:

$$
\begin{aligned}
&\text{(IS)} && Y &&= C(Y) + I + G + NX(FD, Y) \\
&\text{(LM)} && M/P &&= L(Y, i) \\
& && r &&= i - \pi \\
& && C(Y) &&= \alpha + bY \\
& && I(r, Y) &&= c + d_2 Y \\
& && NX(FD, Y) &&= EX(FD) - IM(Y) \\
& && EX(FD) &&= l_1 + l_3 FD \\
& && IM(Y) &&= m_1 + m_3 Y \\
& && L(i, Y) &&= h + gY - fi
\end{aligned}
\qquad \text{(Model B)}
$$

Table 6 verifies the significant parameters:

Table 6

Parameter Estimations for Model B (period 1995 – 2005)

	Constant	*Y*	*r / i*	*ε*	*FD*	*R2*
C(*Y*)	-47 289,53	0,76	-	-	-	0,94
	0,010946	0,000001				
I(*Y*)	-3 954,68	0,22	-	-	-	0,83
	0,627958	0,000097				
EX(*FD*)	48 287,60	-		-	2,91	0,67
	0,031300				0,002044	
IM(*Y*)	2 446,05	0,52	-	-	-	0,83
	0,899894	0,000097				
L(*i*, *Y*)	-122 185,73	0,83	-338,08	-	-	0,97
	0,000285	0,000003	0,004754			

The substitution of significant parameters determines the new shape of the IS – LM curves:

(IS) $Y = \alpha + bY + c + d_2Y + G + l_1 + l_3\, FD - m_1 - m_3Y$
(LM) $M/P = h + gY - fi$
$r = i - \pi$

From the IS curve we can figure real GDP Y as:

$$Y = \frac{1}{1-b-d_2+m_3}(a+c+G+l_1+l_3FD-m_1)$$

The $\frac{1}{1-b-d_2+m_3}$ part of the equation is called a basic multiplier, which talks about the multiplicative effect of increasing main GDP aggregates on GDP growth. The multiplier sign is positive, because we assume that people saved and invested goods, and did not consume, which implies that the sum of marginal addiction to consumption *b* and marginal addiction to investments d_2 must be smaller (or equal to) than one.

Mathematical analyses enable us to examine the influence of fiscal policy as well as the influence of some parameters on GDP growth. An expansive fiscal policy represented by government expenditure growth increased real GDP Y (derivation of Y according to G is positive). This effect was noticeable in Ukraine from 1999. Still, this fault gave fiscal policy a rather restrictive character.

$$\frac{\partial Y}{\partial G} = \frac{1}{1-b-d_2+m_3} > 0$$

Even the increased addiction to investments d_2 and marginal addiction to consumption *b* improve the effect of fiscal policy. In our model, parameter *b* (0.76) is greater than parameter d_2 (0.22), which means that most of the goods bought were spent on consumption.

$$\frac{\partial^2 Y}{\partial G \partial b} = \frac{\partial^2 Y}{\partial G \partial d_2} = \frac{1}{(1-b-d_2+m_3)^2} > 0$$

The economy achieved the same effect of growing GDP by increasing autonomous parameters *a* and l_1.

$$\frac{\partial Y}{\partial a} = \frac{\partial Y}{\partial l_1} = \frac{1}{1-b-d_2+m_3} > 0$$

The derivation according to foreign demand FD or sensitiveness on trade partners' imports l_3 is positive, which corresponds with our expectations about external trade behavior.

$$\frac{\partial Y}{\partial FD} = \frac{l_3}{1-b-d_2+m_3} > 0$$

$$\frac{\partial Y}{\partial l_3} = \frac{FD}{1-b-d_2+m_3} > 0$$

World boom effects could increase by multiplying marginal addiction to consumption *b* or by sensitivity to trade partners' imports l_3, which reflects the competitiveness of Ukraine's goods.

With marginal addiction to investments d_2 and marginal addiction to consumption *b* rising or parameter m_3 – the growth of imports by additional growth of real GDP Y declining, GDP Y was increasing.

$$\frac{\partial Y}{\partial b} = \frac{\partial Y}{\partial d_2} = -\frac{\partial Y}{\partial m_3} = \frac{1}{(1-b-d_2+m_3)^2}(a+c+G+l_1+l_3FD-m_1) > 0$$

Solving the IS – LM system of two endogenous parameters and two equations, we reach an equilibrium point of real GDP Y* and nominal interest rate i* (see *Graph 3*). By formulating the interest from the LM curve we receive the following shape:

$$i = 1/f(h+gY-M/P)$$

By substituting of Y from the IS curve to the LM curve, we get equilibrium point i*:

$$i^* = 1/f[h+g\frac{1}{1-b-d_2+m_3}(a+c+G+l_1+l_3FD-m_1)-M/P]$$

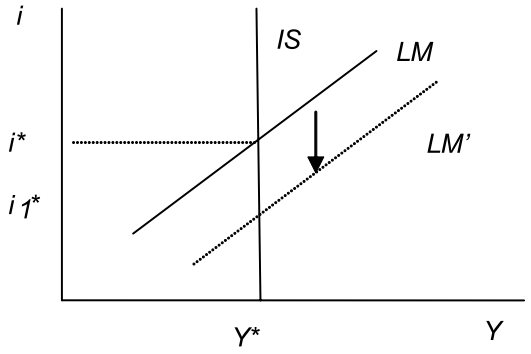
Real GDP equilibrium point Y* is determined from the IS curve as:

$$Y^* = \frac{1}{1-b-d_2+m_3}(a+c+G+l_1+l_3FD-m_1)$$

The quantitative analyses imply that neither exports nor imports rely on the real exchange rate and also that the interest rate is not significant in the investment curve. Therefore the IS curve is vertical (see *Graph 6*). This shape determines the level of real income Y* independently from the LM intersection. Diminishing price P moves the LM curve to the right (LM'), which defines a new lower equilibrium point i_1*. Investment demand does not react to this situation because of the inelasticity towards the interest rate), which results in unchanged demand for goods Y. Monetary

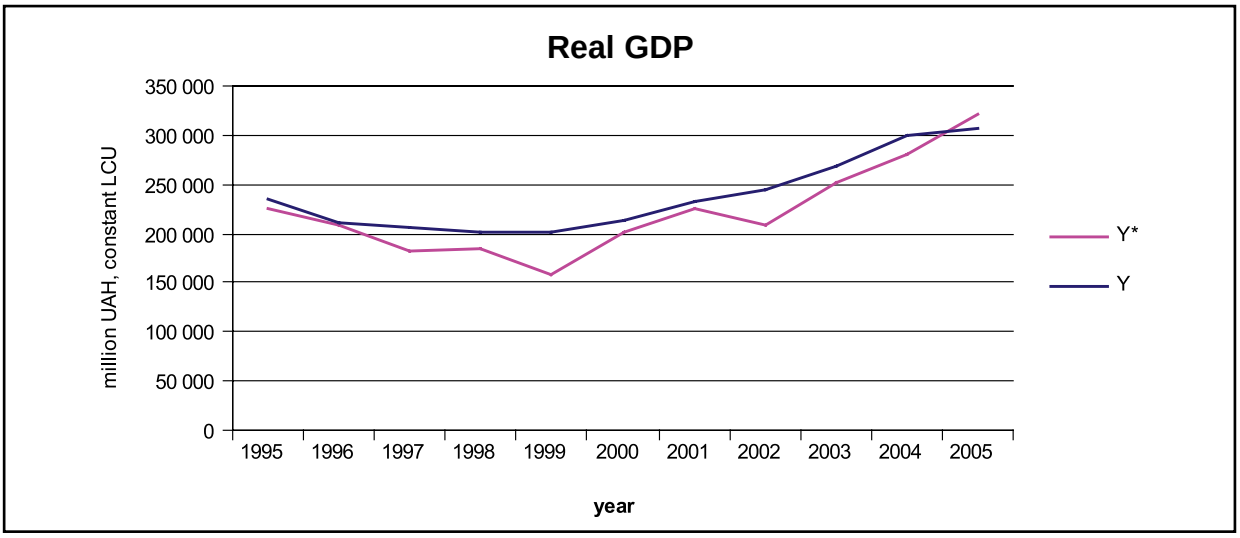
instruments do not have any influence on real variables in the short run. This fact induces an imbalance in the monetary sector[42].

Graph 6: IS – LM curves

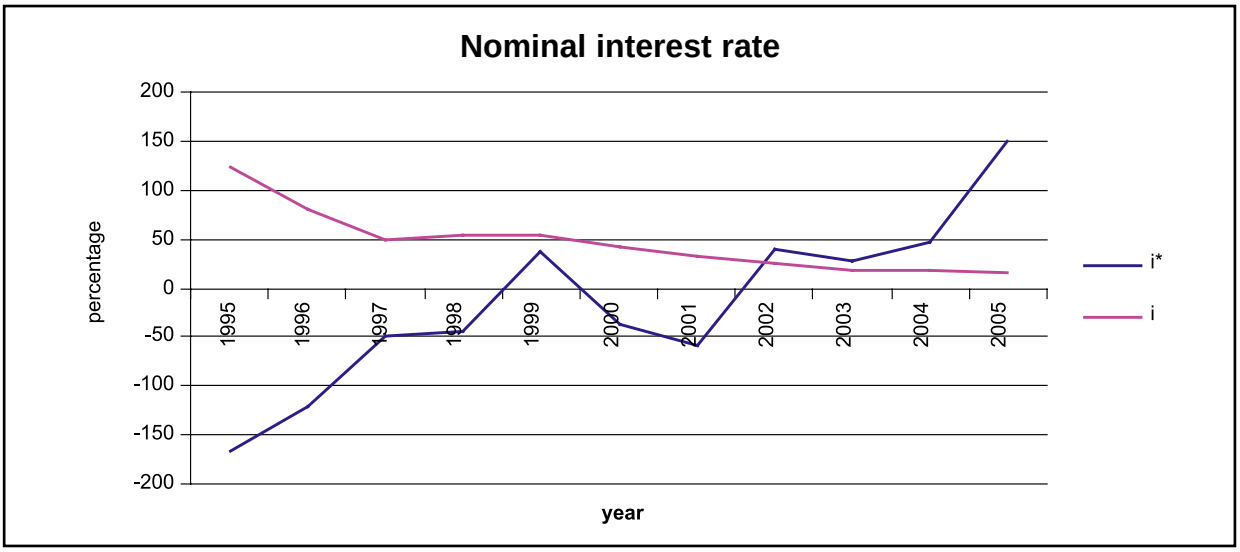


Real (Y, i) and estimated (Y*, i*) variables of real GDP and the nominal interest rate during the period investigated, 1993 – 2005, are seen in *Graph 7* and *Graph 8*:

Graph 7: Real GDP, Estimated (Y) and Real Value (Y)*



Graph 8: Nominal Interest Rate, Estimated (i) and Real Value (i)*



42 *Discussion about unbalanced in monetary policy: FELDERER – HOMBURG, 1995, s. 152 – 153*

As we can see in the first graph (*Graph 7*), the equilibrium time series Y* is close to the real GDP Y. On the other hand, the estimated curve i* (*Graph 8*) seems to be balanced or close only in 1999, 2002 and 2003. This graph confirms that the monetary policy is ineffective and unbalanced. Concrete data for real and estimated variables of GDP and interest rate are enclosed in Appendix 1, *Table 7* and *Table 8*.

Conclusion

A quantitative analysis of the Mundell – Fleming model for Ukraine indicates the character of this economy in transition, which is close to a standard market economy. The estimated parameters with their mathematical signs are determined according to our expectations. Though some of the linear dependencies did not react according to economic theory, this phenomenon appears in Mundell – Fleming models for several other European economies as well. In the IS curve, we noticed no dependence on interest rates (in the investment equation) and real the exchange rate (in the import and export equation), which indicated an inefficient equilibrium of real GDP Y^* and interest rate i^* implied from the IS – LM system.

Concerning the fact that the National Bank of Ukraine influences the interest rate without moving the output of the economy, we recommend an anti-inflationary monetary policy. External trade policy aims to fix the nominal exchange rate, but our model showed that after attention to domestic and foreign price levels, the real exchange rate variable tends to be insignificant. Therefore it would by more effective to manage a floating exchange rate regime. Qualitative analysis demonstrated that government expenditures positively influence real GDP growth; thus it is better to maintain a fiscal policy with an anti-cyclical position.

APPENDIX 1

Table 3

Source of data and data description

Series	Index	Definition	Source
GDP (constant LCU, mil.)	**Y**	GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in millions in constant local currency.	World Bank national accounts data, and OECD National Accounts data files
Household final consumption expenditure (constant LCU, mil.)	**C**	Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of non-profit institutions serving households, even when reported separately by the country. Data are in millions in constant local currency.	World Bank national accounts data, and OECD National Accounts data files
General government final consumption expenditure (constant LCU, mil.)	**G**	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security, but excludes government military expenditures that are part of government capital formation. Data are in constant local currency.	World Bank national accounts data, and OECD National Accounts data files
Gross capital formation (constant LCU, mil.)	**I**	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and «work in progress.» According to the 1993 SNA, net acquisitions of valuables are also considered capital formation. Data are in millions in constant local currency.	World Bank national accounts data, and OECD National Accounts data files
Exports of goods and services (constant LCU, mil.)	**EX**	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude labour and property income (formerly called factor services) as well as transfer payments. Data are in millions in constant local currency.	World Bank national accounts data, and OECD National Accounts data files
Imports of goods and services (constant LCU, mil.)	**IM**	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude labour and property income (formerly called factor services) as well as transfer payments. Data are in millions in constant local currency.	World Bank national accounts data, and OECD National Accounts data files
Money and quasi money (M2) (current LCU, mil.)	**M**	Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International Financial Statistics (IFS). Data are in millions in current local currency.	International Monetary Fund, International Financial Statistics and data files
Inflation, GDP deflator (annual %)	**p**	Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole.	World Bank national accounts data, and OECD National Accounts data files
Inflation, GDP deflator (2003 = 1)	**P**	The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.	Recalculation from annual growth rate of the GDP deflator
Real effective exchange rate index (2000 = 100)	**ε**	Real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.	International Monetary Fund, International Financial Statistics

Real interest rate (%)	**r**	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.	International Monetary Fund, International Financial Statistics and data files using World Bank data on the GDP deflator
Lending interest rate (%)	**i**	Lending interest rate is the rate charged by banks on loans to prime customers.	International Monetary Fund, International Financial Statistics and data files
Weighted Foreign demand (constant 2000 US$, mil.)	**FD**	Foreign demand is the weighted import of major Ukrainian trade partners. Weights are set as a share of exports from Ukraine to the partner country and imports of goods and services of trade partner. Data are in millions in US dollars on a constant year 2000 basis.	IBSER, World Bank national accounts data, and OECD National Accounts data files

Table 4

Foreign demand FD

Ukrainian major trade partners	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Ukrainian exports of goods and services (current US$)	16 988,50	18 596,68	22 695,83	20 341,62	20 356,66	17 543,99	16 960,00	19 522,00	21 080,21	23 352,98	28 952,31	39 715,74	44 341,85
Ukrainian exports to Russian Federation (current US$)	0,00	3 837,50	6 014,90	5 577,40	3 723,00	2 905,50	2 396,40	3 515,60	3 679,50	3 189,10	4 311,40	5 886,20	7 490,10
Share of Ukrainian exports to RUS	0,00	0,21	0,27	0,27	0,18	0,17	0,14	0,18	0,17	0,14	0,15	0,15	0,17
Russian Imports of goods and services (constant 2000 US$)	53 545,74	55 804,23	67 610,79	68 489,73	68 763,69	56 798,81	47 143,01	62 417,35	74 098,83	84 902,24	99 929,94	121 914,52	143 005,73
Ukrainian exports to Turkey (current US$)	430,00	115,10	440,20	408,70	670,90	696,30	673,40	868,50	1 009,40	1 235,40	902,10	1 869,20	2 026,70
Share of Ukrainian exports to TUR	0,03	0,01	0,02	0,02	0,03	0,04	0,04	0,04	0,05	0,05	0,03	0,05	0,05
Turkish Imports of goods and services (constant 2000 US$)	34 018,56	26 576,76	34 439,32	41 507,54	50 821,25	52 007,53	50 105,80	62 834,59	47 227,61	54 702,05	69 506,09	86 670,22	96 754,74
Ukrainian exports to Italy (current US$)	460,40	178,30	725,00	345,80	398,30	553,90	463,60	644,20	839,70	839,30	1 284,90	1 637,60	1 897,50
Share of Ukrainian exports to ITA	0,03	0,01	0,03	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
Italian Imports of goods and services (constant 2000 US$)	191 407,13	206 274,28	225 474,76	222 591,12	242 035,29	262 846,41	270 900,13	286 628,81	286 177,72	284 821,45	287 073,08	294 293,08	298 300,80
Ukrainian exports to Poland (current US$)	182,80	140,90	264,30	362,70	380,30	313,10	301,40	417,90	497,40	506,00	763,00	979,90	1 010,40
Share of Ukrainian exports to POL	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,02	0,02
Polish Imports of goods and services (constant 2000 US$)	19 302,73	21 483,93	26 704,53	34 183,56	41 500,79	49 207,90	49 720,22	57 450,37	54 390,26	55 832,24	61 035,45	70 304,19	73 717,58

Table 7

Nominal interest rate estimated (i*) and according to reality (i), percentage

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
i*	-166,97	-119,89	-50,04	-45,16	38,29	-36,41	-57,49	38,97	27,64	46,34	148,53
i	122,70	79,88	49,12	54,50	54,95	41,53	32,28	25,35	17,89	17,40	16,17

Table 8

Real GDP estimated (Y*) and according to reality (Y), constant LCU

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Y*	224 154,54	207 868,84	183 178,05	184 827,69	158 372,06	200 649,55	225 653,27	209 466,40	250 583,32	280 248,30	320 246,26
Y	235 020,09	211 518,08	205 172,54	201 274,26	200 871,71	212 723,14	232 293,68	244 372,95	267 344,00	299 692,62	307 484,62

Conclusion

The MBR project brought, with its many valuable studies, enhanced macroeconomic forecasting as a basic tool for efficient budgeting in Ukraine. Based on the analysed results we recommend these arrangements:

An analysis of available models and a discussion of the methods used showed that it is necessary for the ***Ministry of Finance*** of Ukraine to be independent in the field of the ***methodological system*** used in the process of budgeting and forecasting, as showed in chapter one, where it is discussed in terms of EU budgeting in detail.

The Ministry of Finance of Ukraine should more intensely pay attention to questions from the field of macroeconomic theory, mainly fiscal policy and its coordination with other policies with the goal of an optimal monetary-fiscal mix. At this stage we suggest the study of the ***Mundell-Fleming model*** described in the second chapter of this monograph including its modifications for Ukraine examined in the last chapter.

Due to an unclear system of exchange of exogenous variables between the Ministry of Finance of Ukraine and the Ministry of Economy of Ukraine during the creation of macroeconomic forecasts and the un-transparent model of the Ministry of Economy of Ukraine, it is necessary that the Ministry of Finance of Ukraine start to build its ***own comprehensive econometric model*** for forecasting macroeconomic development, with a well-developed fiscal module. For this purpose the third chapter of this book explored the long-term econometric model focused on the sustainability of Slovakia's health care system.

CGE modelling is currently developing rapidly and the available literature gives only brief and out of date information. In order to start CGE modelling relatively fast and in proper quality suitable to the needs of the Ministry of Finance of Ukraine, it is necessary to gain practical knowledge and experience at a high quality and active institution, which has experience with modelling of a transitive economy (including the creation of a ***CGE model of the economy of Ukraine,*** which is listed in the fourth chapter).

It is necessary that the State Statistics Committee of Ukraine pays enough attention to ***SAM,*** essential in CGE modelling. This approach can solve the problem of a lack of a consistent time series.

MONEY
Euro (€/$)
UAH
JUN
Sterling