# Midterm Forecast of Slovak Economy for the Period 2010 – 2013 with Outlook to 2015[1]

*Marek  RADVANSKÝ – Viliam  PÁLENÍK – Soňa  SLOBODNÍKOVÁ*\*

## Abstract

*Forecasting of future economic development quite a short time after the global economic crisis is more than a complicated task. The main uncertainty is linked to the process of recovery of the world economy from the crisis and the direction of governments' economic policies and their corresponding effectiveness. Nevertheless, it is necessary to develop such forecasts, to collect them and compare with different approaches of particular forecasting works. This article represents the approach of the team of the Institute of Economic Research, Slovak Academy of Sciences. Forecast is based on the econometric model B_IER SAS ECM 09q4 and is focused on the GDP and its components, the labour market and public budget revenues. The time horizon is limited to years 2010 and 2015 and continues two years beyond the end of the financial programming period of the EU.*

**Keywords:** *economic forecast, Slovak Republic, economic crisis, GDP growth, state budget*

**JEL Classification:** C51, C53, E17

## Introduction

Econometric modelling is one of the most frequently used methods for forecasting the future development of an economy. Application of the econometric models has experienced a few phases in Slovakia. During first years of transformation, after the establishment of the Slovak Republic in 1993, appropriate data were missing, so it was complicated to produce a good econometric model. During

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the nineties, a number of institutions dealing with creation of econometric modelling and forecasting appeared. Mostly published results were those by the National Bank of Slovakia (Reľovský and Široká, 2009), Infostat (Haluška, Olexa and Orságová, 2001), the Ministry of Finance of SR and the Institute of the Economic Research of the Slovak Academy of Sciences. This article contains a basic description of the current model of last mentioned IER SAS and the forecast for years 2010 – 2013 with perspectives to 2015.

Recently, the econometric modelling in Slovakia achieved its specific features. Quite a short time after beginning of the global economic crisis (autumn 2008) it is still difficult to forecast the future development of an economy. This task is even more complicated in Slovakia, because it is a small and highly open economy. Main indicators of the global growth undergo turbulent changes which results in caution and uncertainty about forecasting of macroeconomic parameters. During the last 18 months the macroeconomic forecasts were reappraised regularly, as econometric models are not capable of capturing such significant changes by their nature. As an example, we can mention the Eastern Europe Consensus Forecasts (EECF),[2] which brings an overview of the monthly forecasts for the following two years in the CEE countries (Graph 1).

G r a p h  1

**Historical Development of the Slovak GDP Forecast According to the Month of Its Creation**
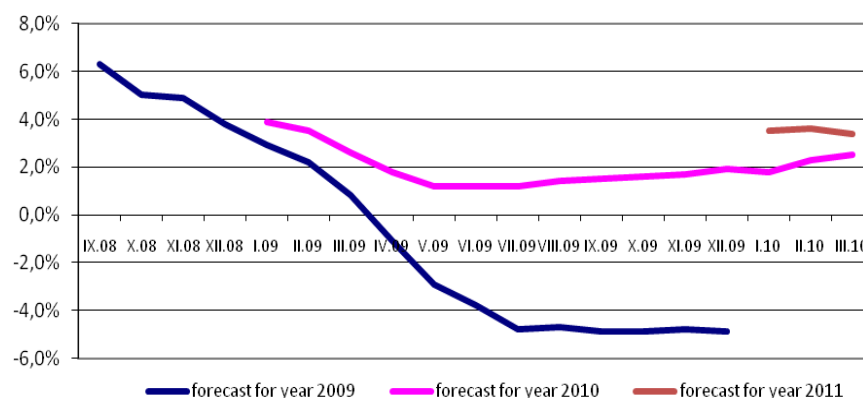


*Source:* Eastern Europe Consensus Forecast (2008 – 2010).

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[2] The consensual forecast of the EECF for Slovakia was based on estimates of 9 independent economic institutions. These estimates were confronted mutually and with 6 other forecasts of government and international organisations. In the forecasts published before September 2008, this system predicted a 6.3% GDP growth in constant prices. Since September 2008, forecast of every single institution was periodically revised downwards, with course to negative economic growth. For example, the forecast from July 2009 of a real GDP growth in 2009 was precise to – 4.6%. In

When estimating the future development, the instability of external and internal factors influencing the behaviour of the economy in the mid-term horizon involves increased risks. Present forecast shows the most probable development of the Slovak economy, considering assumptions for development of external and internal indicators from March 2010.

## Description of the Model

The econometric model SAS_B_IER_ECM_09q4 was designed in order to create forecasts of a future development of the Slovak economy. It is based on quarterly data, from 1995q1 to 2009q4, 60 observations. The forecast is for a medium term with 2015 as the last considered year. Data sources are: Statistical Office of the Slovak Republic, the National Bank of Slovakia and the Ministry of Finance of the Slovak Republic.

The model is based on the macroeconomic principles, is demand-oriented and divided into 5 blocks (labour market block, state budget block, block of prices, foreign trade block and GDP block). The model contains 52 equations. While 31 of them are stochastic, the remaining 21 equations are identities. Stochastic equations have the ECM form[3] (error-correction method). In particular equations, there are integrated time series of the same order used and long-term equilibrium is described by the co-integration relationships. Particular blocks of the model are briefly presented in next part of this paper.

### Labour Market Block

In this block, there are two crucial stochastic equations – for employment and for wage. Equation for the wage development is based on the assumption of a positive relationship between wages and the growth of the consumer prices and productivity of labour force and a negative relationship towards the growth of the unemployment. Unemployment is constructed as an identity.

The employment equation is determined negatively by real wage costs on one employee and positively by a real growth of the economy represented by the growth of the GDP in constant prices.

The forecast of the economically active population development follows the assumption of a stable demographic development, according to the middle variant of the Slovak Demographic Research Centre forecast (Vaňo and Bleha,

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comparison with expectations presented a year before, this forecast was nearly 9 percent points lower. For year 2010, a slight growth about 2.5% is generally expected (March 2010).

[3] Methodology, see Banjere et al. (2003).

2007). Subsequently, the development of the wage is used to estimate the development of the wage in industry as well as of gross mixed income formation.

S c h e m e  1
**Overview of the Labour Market Block**
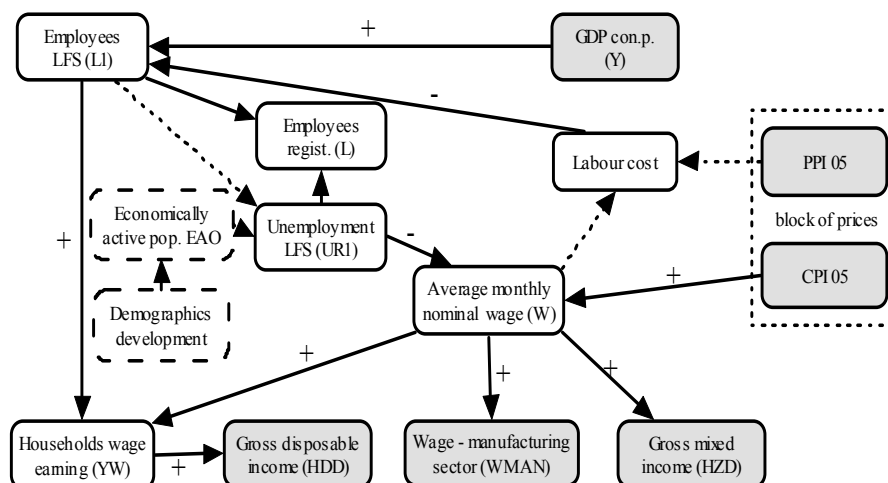


*Source:* Authors.

Gross wage earnings of the population are determined by the number of employed people and the average nominal monthly wage. Average monthly nominal wage is based on the unemployment level and the price index.[4] The gross wage earnings of the population determine the gross disposable income. The scheme 1 represents the Labour market block scheme.

Functional relationships in the Labour market block:[5]

$W = f(UR1, CPI05)$          $L1 = f(Y, W/PPI05)$

$L = f(L1)$          $WMAN = f(W)$

$HZD = f(W)$          $YW = (L1, W)$

$HDD = f(YW)$          $UR1 = (EAO1 – L1)/(EAO1)*100$

> W      – stands for an average nominal monthly wage,
> UR1      – the unemployment rate according to the LFS (Labour force survey) methodology,
> CPI05      – the consumer price index with the base year 2005,
> L1      – the employment according to the LFS,

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[4] We have also considered labour productivity to be added to the equation. However, statistical analyses for Slovak condition show better explanatory value for this representation.

[5] In these relationships, we do not specify seasonal, trend and dummy variables.

L        – a registered number of employed people,
WMAN  – an average nominal monthly wage in industry,
HZD     – a gross mixed income,
YW      – gross wage earnings,
HDD     – a gross disposable income (of households),
EAO1    – the development of the economically active population according to the LFS.
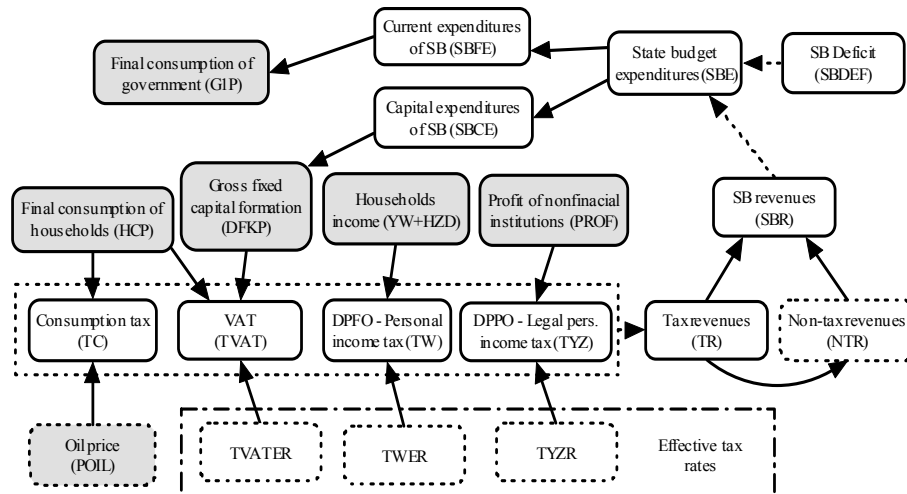
**State Budget Block**

The block of the state budget is highly influenced by the situation on the labour market and development of economic indicators representing the tax base. The side of the revenues of the state budget (SB) consists mainly of equations for tax revenues, which together with the SB non-tax revenues give a sum of the total SB revenues (as an identity).

The SB deficit is an exogenous variable and is based on national legislation (the state budget act). The Ministry of Finance of SR prepares expectations about the state (and public administration) budget, deficit and expenditures in conception of three fiscal years. These expectations determine assumptions about calibration of the deficit values.

The SB expenditures are represented by stochastic equations and are divided into current and capital expenditures. Current expenditures enter the equation for the final consumption of government and capital expenditures determine the gross fixed capital formation. Scheme 2 represents the scheme of the State budget block.

S c h e m e  2
**Overview of the State Budget (Public Finances) Block**



*Source:* Authors.

Functional relationships in the State budget block:

TC = f(HCP, POIL)                    TW = f(TWER, YW + HZD)

TYZ = f(TYZR, PROF)                  TVAT = f(TWATER, HCP + DFKP)

TR = f(TC + TYZ + TW + TVAT)    SBR = TR + NTR

SBDEF = YP * SBDEF_rate           SBE = SBR + SBDEF

SBCE = f (SBE)                        SBFE = f (SBE)

G1P = f (SBFE)

where

    TC     – the consumption tax,

    HCP   – the final consumption of households in current prices[6] (c. p.),

    POIL   – the nominal oil price,

    TW    – a personal income tax,

    TYZ   – a legal persons income tax,

    TWER, TVATER and TYZR – effective tax rates,

    PROF – an estimated profit of non-financial institutions,

    DFKP – a gross fixed capital formation in c. p.,

    TR    – tax revenues,

    NTR   – non-tax revenues,

    SBR   – total state budget revenues,

    SBDEF – state budget deficit, SBDE_rate stands for ratio of the SB deficit to GDP,

    YP    – the GDP in c. p.,

    SBE   – total state budget expenditures,

    SBFE – current expenditures,

    SBCE – capital expenditures,

    G1P  – a final consumption of the government.

In this block, there are more exogenous variables used. Equation for consumption taxes is based on the final consumption of households and includes also the effect of the oil prices changes.

Remaining tax equations include exogenous variables representing the effective tax rate, which is an average tax rate affecting all taxed subjects. In case of more than one tax rate, we used a weighted average rate. Development of particular tax rates is presented in Graph 2.

Equation for the value added tax includes (besides effective tax rate) also a sum of the final consumption of households and gross fixed capital formation. We assume this aggregate to be the best proxy for the tax base. In equation for the personal income tax, there is a breakpoint in the tax collection which reflects the change of its recipient in year 2005.[7] Equation includes the effective tax rate

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[6] Constant prices are calculated with the base year 2005. We denote variable XX in current prices with a suffix –P, that is XXP, and particular deflator with prefix P–, that is PXX.

and the income of households. Equation for legal persons income tax is determined by the expected profit of non-financial institutions and a constant effective tax rate (we assume it to stay at 19% level).

G r a p h 2

**Development of Effective Tax Rates**
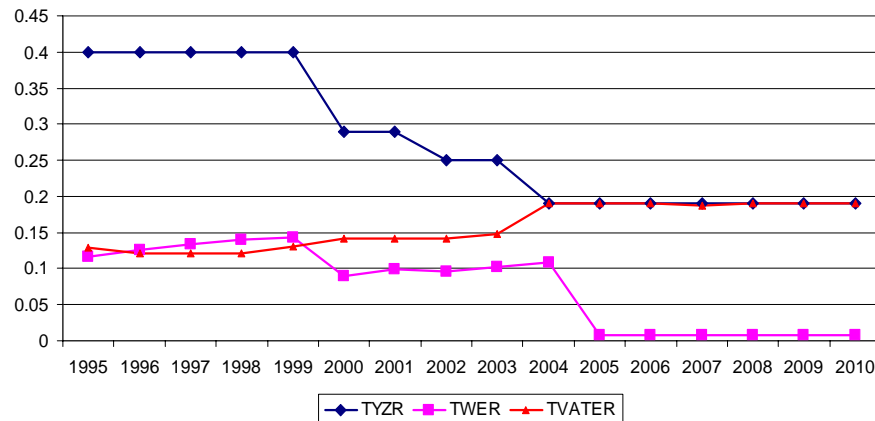


*Source:* Authors.

## Block of Prices

The block of prices is crucial for the calculation of the real data. Changes of the accounting methodology of the GDP and its components caused a change in its computation. The sum of particular components of the GDP is no longer additive in constant prices, as they are calculated by chain-linking (by the Statistical Office of the SR). Our current computation of GDP in constant prices is based on the GDP deflator, which is composed of a weighted average of the deflators of the particular components of GDP (according to the expenditure method). Particular deflators are determined by the producer price index with the base year 2005 (PPI05) and the consumer price index CPI05 (its change represents the inflation). Scheme 3 represents the Block of prices scheme.

Functional relationships in the Block of prices:

CPI05 = f(REG05, PPI05, PMGSR)   PPI05 = f(PPI05R, WMAN, POIL)
PC = f (CPI05)                   PG = f (CPI05)
PDFK = f (PPI05)                 PY = f (PEGSR, PMGSR, PC, PG, PDFK)

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[7] As part of the fiscal decentralization, revenues from personal income tax are divided as follows: 70.3% to municipalities, 23.5% to budget of regional governments (VÚC) and the rest (6.2%) remains at the state budget.

where

REG05 a PPI05R – indices of regulated prices with the base year 2005,

PC – a deflator of final consumption of households,

PG – a deflator of the final consumption of the government,

PDFK – a deflator of the formation of a gross fixed capital (investments),

PEGSR and PMGSR – deflators of foreign trade (export and import of goods and services).

S c h e m e 3
**Overview of Block of Prices**
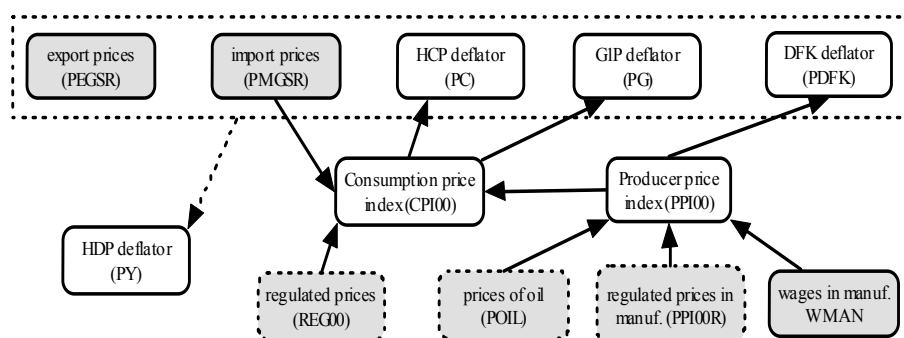


*Source:* Authors.

The equation for the producer price index PPI05 is influenced by the development of regulated prices. Equations for prices of import and export belong to the Block of foreign trade. Besides these 2 variables, development of the producers' prices is also affected by the wage costs growth in industry.

Equation of the consumer price index is determined by the growth of the producers' prices, regulated prices and import prices. Deflators for the final consumption of households and government are based on the development of the consumer price index. Deflator of the formation of gross fixed capital (investments) is determined by the producer price index.

**Foreign Trade Block**

Block of the foreign trade is crucial for the modelling of the economy of the Slovak Republic. The problem is caused by a high openness of the Slovak economy (which was more than 180% in 2007 although started declining in 2008 and 2009). As the import and also the export are greater than the GDP, a single 1% error in the estimation can cause a greater error in GDP. Consequently, the uncertainty of the foreign trade development is very important factor that can

profoundly influence the GDP forecast. Hence, in this case, it is more appropriate to generate an acceptable level of the net export than to focus too closely on the levels of import and export taken separately. We do not assume any considerable move towards net export surplus. Also, this block is the only one to be modelled in constant prices. Its scheme is represented at Scheme 4.

S c h e m e  4
**Overview of the Foreign Trade Block**



*Source:* Authors.

Functional relationships in the foreign trade block:

EGSR = f(EURSKP, PIM_EU15/PEGSR, Y_EU15)      MGSR = f (DD,EGSR)
PEGSR = f(PMGSR, PIM_EU15, PPI05)   PMGSR =  f(EURSKP, PEX_EU15)
DD = HC + DFK + G1 (components of GDP in constant prices)

where

EGSR and MGSR – the export and import o goods and services,
EURSKP – the nominal exchange rate of EUR and SKK (Slovak crown),
PEX EU15 and PIM EU15 – prices of the export and import of the old states of European Union,
Y_EU15 – GDP of EU15 in c.p.,
DD – domestic demand and DFK gross fixed capital formation, both in constant prices.

Equation for export is based on the development of foreign demand that is represented by the GDP of EU15. In this equation, also exchange rate of Slovak crown (SKK) to EUR was significant. After the Euro adoption on $1^{st}$ January 2009 the EUR exchange rate was set to the conversion rate of 30.1260 SKK.

The equation for import is based on the domestic demand and export development, as a significant part of import is only processed in Slovakia and afterwards re-exported. Prices of import (deflator) are determined by the exchange

rate and by the change in export prices. Deflator of export is determined by the changes in import prices, producer price index and prices of foreign import.
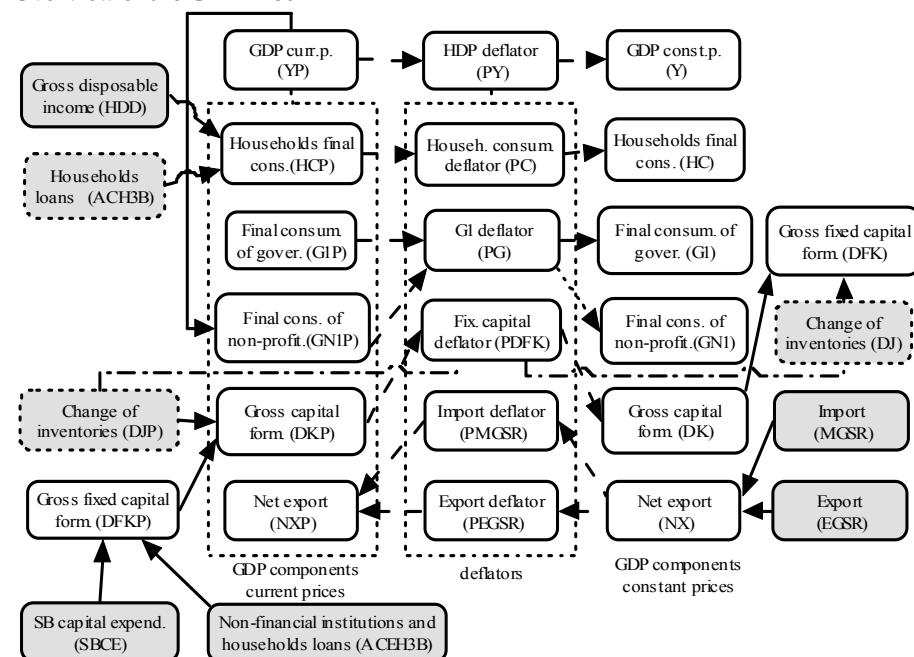
## GDP Block

The block of the GDP contains equations and identities used to calculate the GDP in constant and current prices. Structure of the block is on the Scheme 5. Block is based mainly on identities for particular GDP components as well as on a few stochastic equations. The equation for the final consumption of households is determined by the change of a gross disposable income and the volume of loans provided to the households.

The equation for the formation of the gross fixed capital is based on the change of the capital expenditures of the state budget and on the volume of loans provided to the non-financial institutions and households. Considering exogenous variables, we expect a growth of the loans for non-financial institutions on the yearly level about 10% and a yearly growth of loans for households more than 20%. Particular GDP components are expressed nominally and then via deflators converted to constant prices (except for the foreign trade).

S c h e m e 5
**Overview of the GDP Block**



*Source:* Authors.

Functional relationships in the GDP block:

HCP = f(HDD, ACH3B)        DFKP = f (SBCE, ACEH3B)
DKP = DFKP + DJP           NX = EGSR – MGSR
EGSPR = EGSR * PEGSR       MGSPR = MGSR * PMGSR
NXP = EGSPR – MGSPR        YP = HCP + G1P + GN1P + DKP + NXP
HC = HCP/PC                G1 = G1P/PG
GN1 = GN1P/PG              DFK = DFKP/PDFK
DJ = DJP/PDFK              Y = YP/PY

where
  ACH3B     – a three-month average of loans provided to households,
  ACEH3B    – includes also the volume of loans provided to the non-financial
              institutions,
  DJ and DJP  – the change of inventories in constant and current prices,
  NX and NXP – the net export.


## Macroeconomic Assumptions of the Forecast

Turbulent development of world economy at the end of 2008 and in 2009 greatly influenced the future assumptions. Hence, it is necessary to notice that expected "fragile" growth in 2010 can be significantly affected by non-anticipated factors. These factors can profoundly affect the forecast towards a higher growth as well as towards more serious economic problems. We will distinguish between external and internal economic factors.

### External Environment Factors

Factors of the external (outer) environment cannot be influenced by the domestic economic policy and for the purposes of the forecast are considered as given (exogenous variables). Probably the most important external factor is current recovery of the economies from the global crisis. According to the analysis of the main economic indicators, its bottom was reached in the first half of 2009. This fact can be also observed on the labour market, however, with a half year lag.

The national economies search a new equilibrium and are very sensitive to the changes in expectations. A slight growth can be endangered by possible serious problems of the European economies (case of Greece). In an extreme situation, if a cross-default occurs, we could become witnesses of so-called double bottom of the crisis.

Considering the Slovak foreign trade, the crucial issue is the progress in Germany and member countries of the Eurozone. We expect a slight recovery of the foreign demand (0.7%) in the next year. In following years the former dynamics of the growth should continue towards the 2% growth in the horizon of the forecast.

With regards to the situation on foreign financial trades, it was needed to reconsider the anticipated development of foreign direct investment (FDI). In the near future we expect its significant inflow. The reason can be a low profitability of world producers together with a higher caution of banks in providing loans. This caution will persist despite continuing expansive monetary policy of the ECB holding interest rates on a low level. We expect a faster recovery of the investments in 2011.

The exchange rates of euro and other European currencies will be important, as well. We could observe fluctuations in last year. The household consumption was satisfied by outland shopping. More serious is the influence of differences in exchange rates on competitiveness of economies. Our labour force can become more expensive. On the other hand, euro adoption eliminates these uncertainties and can therefore be positive for investors using euro.

Another considerable external source of financing is resources from the EU funds. We expect that the EU will increase the funds rather than restrict them (to help to "defeat" the crisis). The possible positive influence of resources from the National Strategic Reference Framework (NSRF) in a volume larger than 10 billions of EUR was estimated to bring 2 additional percent points to the GDP growth (Kvetan, Mlýnek and Radvanský, 2006). On the other hand, the ability of Slovak economy to absorb and allocate these resources is in question.

Since the accession of Slovakia to the European monetary union (EMU) in January 2009, monetary policy became an external factor, because it is directed by the European Central Bank (ECB). It is highly probable that the ECB will continue with an expansive monetary policy based on keeping interests low in the near future.

**Internal Environment Factors**

There are three fundamental elements for anticipating the development of internal environment – the state and structure of the real economy, the state of the banking sector and the economic policy.

Leading sectors of the Slovak economy can be considered as dynamic and perspective. However, structure of the industry can be problematic, because it is represented by quite a small number of large companies that are principally export-oriented.

During the crisis we experienced a significant decrease of the foreign trade. Situation was caused by a significantly lower foreign demand, which led to a fall of production in most of export-oriented industries. Furthermore, the inner demand was satisfied by a larger domestic production, which surprisingly led to a surplus on the Slovak balance of trade account.

As the health of financial sector was restored in 2000, it can be considered as stable now. There were no highly dangerous products in bank portfolios, so they were not heavily affected by the financial crisis. Despite that, increased caution in providing loans will persist and will cause a lack of a free capital. The amount of a speculative capital has also decreased, which can be considered as a benefit.

An important factor is the economic policy of the government. A lot of arrangements against crisis were approved (by the temporarily created Council for Economic Crisis). However, most of them were non-systematic and affected only selected parts of the economy, as "car-scrapping bonus", house insulation contribution or marginal decrease of contributions to employers reserve fund (which brought an unclear effect on the income of the Social Insurance Company). Therefore, they did not bring any profound effect on lowering the impacts of the crisis in Slovakia.

The additional state budget expenditures together with a fall in revenues (as a consequence of a decreased economic growth) will severely influence the public finance in a negative way. According to a planned expansive fiscal policy, the approved state budget for 2010 will have the highest deficit ever, over 6% of the GDP. The expected public expenditures growth of more than 15% in current prices and the SB expenditure growth of more than 20% brings a danger of an increasing debt of the country and unsustainable deficits for the future.

Demographic changes will also have a profound influence on the economy, especially on regional development in Slovakia (Graph 3). One of the important factors of the development will be the Economic dependency ratio, which expresses the amount of people in pre-and post-working age per a person in working age. The value of this indicator has decreased at the year 2009 in average. Since the year 2010 we expect growth of the economic dependency ratio at the level of 2.1% per year. The highest intensity of growth is expected in the Bratislava Region at the level of 3.4% per year. In the past, the largest numbers of economically dependent people were in pre-productive age (children), now the burden shifts under the impact of growing number of older people. Currently, the average level of the Economic dependency ratio reaches the level of 0.38.

The forecast of the economically active population development follows the assumptions of stable demographic growth according to the middle variant of the forecast of the Slovak Demographic Research Centre and of a slight growth of

the participation. Also important will be ageing of population together with an increased pressure on the pension system and a decreasing number of inhabitants in pre-productive age (most strongly influencing the Bratislava region).

G r a p h  3
**Economic Dependency Ratio, 2001 – 2020**
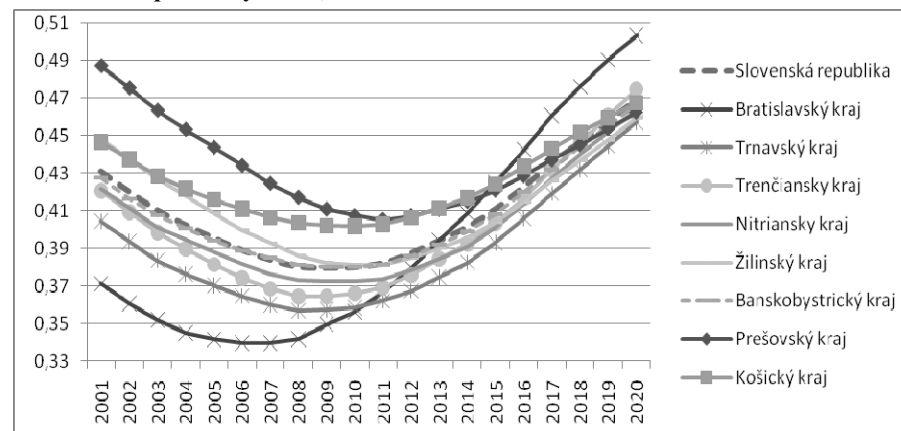


*Source:* Statistical Office of the SR; authors.

## Macroeconomic Forecast

The overall macroeconomic environment in Slovakia will be highly dependent on the development of the labour market, capital market and the foreign trade.

In 2009, the labour market was influenced by a decreasing demand for labour (because of decreasing foreign demand for exported goods), a lower amount of the foreign direct investments and a temporal stoppage of developers' projects in progress. At the end of 2009, a turning tendency was observed with a reach of assumed ceiling of the unemployment rate. According to the forecast, the employment will attain its former level of 2008 approximately at the end of 2012 (Graph 4).

The development of the economically active population will be influenced by a rise of the rate of participation from 68.6% in 2008 to 70% in 2013 and by a mid-term fall of the number of inhabitants in the productive age. This trend will become more significant after 2011. (Anticipated number of people in productive age in 2020 is 3.72 mil., which means a fall of 200 thousands.) To conclude, the number of economically active population will slightly rise at the beginning of forecast period. In the horizon of the forecast, we do not expect a significant increase in the volume or efficiency of resources spent on an active

labour market policy. Considering also a lower demand for labour of most important employers (of a regional importance), we get an assumption of a total employment stagnation.

G r a p h  4
**Labour Market Indicators[8]**
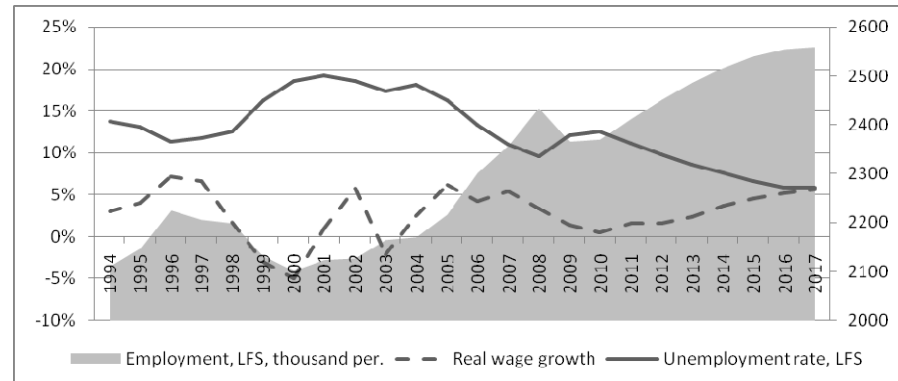


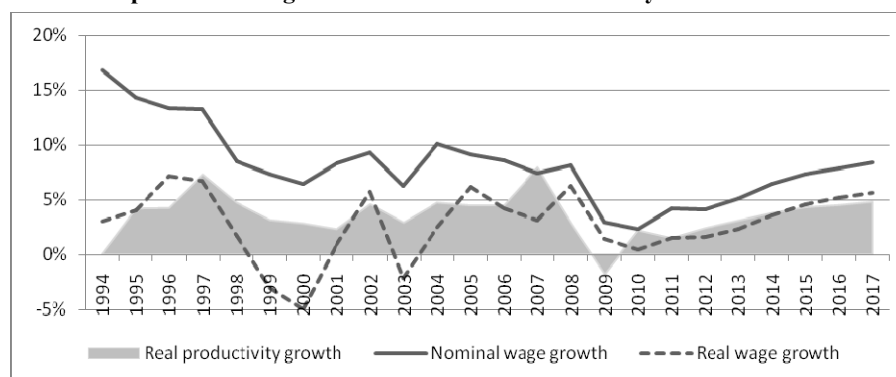*Source:* Statistical Office of the SR; authors.

According to the presented forecast, the average employment (LFS) should grow fairly in 2010, after a fall of 65 thousand in 2009. Following the expectation of the return of the Slovak inhabitants working in foreign countries, the rate of unemployment will increase to the level of 12.5% in 2010. We should mention that the highest number of unemployed people was recorded in the 4th quarter of 2009 (374.6 thousands of people, rate of unemployment 13.9%), which diminishes assumptions about faster decline of the unemployment rate in following years. With a slight growth of the EAO, the return to lower levels of unemployment will be rather slow (Graph 5).

As the labour productivity is measured as a ratio of the GDP to the number of employees, we cannot expect a high growth, because both variables decreased. In 2010 and 2011 we assume only slow growth of the productivity (Graph 5). Economic policy arrangements will play an important role and are expected to try to prevent the employment from decline. (E.g., shortened working time has taken place in some companies.)

Average monthly wage will follow similar trends. On the other hand, discharge of people from lower salary jobs can have an opposite effect. The growth of prices was the lowest in history (almost a stagnation of consumer price index and a decline of producer price index) and growth of real wages was recorded at level of 1.4%. In 2010 we expect a similar low growth of real wages at about 1%.

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[8] Authors are providing graphical presentation till 2017 to confirm stability of forecast.

G r a p h  5

**Relationship between Wages and Labour Force Productivity**



*Source:* Statistical Office of the SR; authors.

The final consumption of households will reflect the labour market development. Increase of the unemployment and the slow growth of nominal wages caused the 0.7% fall of household consumption with an expected growth of 1% in 2010. Afterwards, we expect a recovery with real growths over 4% per year.

The investment formation was a part of the domestic demand harmed by the global economic crisis at most. In 2009, the gross fixed capital formation decreased of 10.5%. In 2010 we expect increase of investments at 3.5%. After a strong fall of the amount of inventories, we assume an opposite trend this year. Additional resources from NSRF would be an advantage; investments to the infrastructure can help the weakened construction sector.

Despite a slow development of main GDP components, a rapid growth of the final consumption of government can be observed. Current expenditures rose in 2009 because of three elections, as well as for the anti-cyclical fiscal policy aimed to be one of the main stimulations of the economy in 2010. In the following years, it will be inevitable to maintain a better fiscal discipline with a target to lower the public finance deficit under 3% of the GDP.

The global crisis affected also the foreign trade. An extreme fall of export in 2009 of 16.5% was outnumbered only by the fall of import of 17.6%, which together formed a surplus in the Slovak trade balance (1.8 bil. EUR) and modified the GDP fall in a positive way. The double-digit growth of the volume of foreign trade can be expected in 2010. In the future, export efficiency could be significantly influenced by restructuring the industry towards the "green technologies" or orientation to a "silver economy".[9]

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[9] Orientation to consumption and modification of goods and services for elderly people. As the phenomenon of ageing takes place in almost every country of EU, increased demand promises this to be one of the most perspective markets in Europe.

G r a p h 6

**Gross Domestic Product and Its Components, bil. of EUR, cur. pr. 2005**
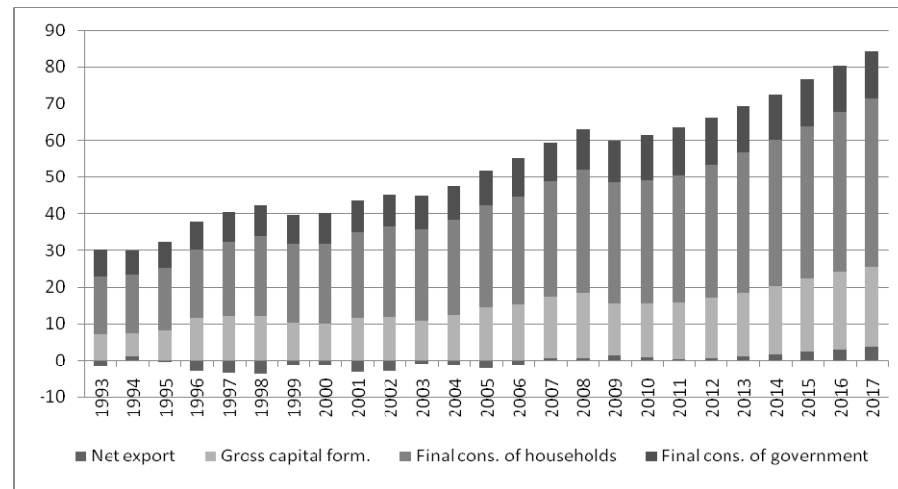


*Source:* Statistical Office of the SR; authors.

A highly complicated development of the global economy caused a real fall of the GDP of 4.7% in 2009. The dependence on specific markets and situation in parent companies influenced mainly the automotive industry and manufacturing of the consumer electronics. The Slovak economy reflected the slight growth of the foreign demand by the growth at the level of 2.5%. After 2010 we expect its final recover from the crisis. However, this process will certainly not be rapid and will last for few years. As for the high unemployment and a slow improvement of the situation on labour market, we can consider the forecast as cautious with mid-term estimation of the GDP growth in the range between 3% and 5% per year (Graph 6).

## Risks of the Forecast

The global crisis impacts and the uncertainty on trades increased the volatility of all factors, which raises risks of the presented forecast. The caution on anticipating the future development affects the economic policy of the government and of main trade partners of Slovakia.

The most important factor of the future development of Slovakia is a speed of recovery of the world economies from the recession. The production capacities gap is currently high and the economy is able to respond to the increasing foreign demand quite quickly by a high growth of production. However, in case

of serious and long-term lasting problems, we could face a slow exit of compa-
nies connected with a drain of the physical capital, production capacities and
investments.

G r a p h 7

**Development of Revenues, Expenditures (left axis) and Deficit of State Budget
(right axis) bil. of EUR, cur. pr.**
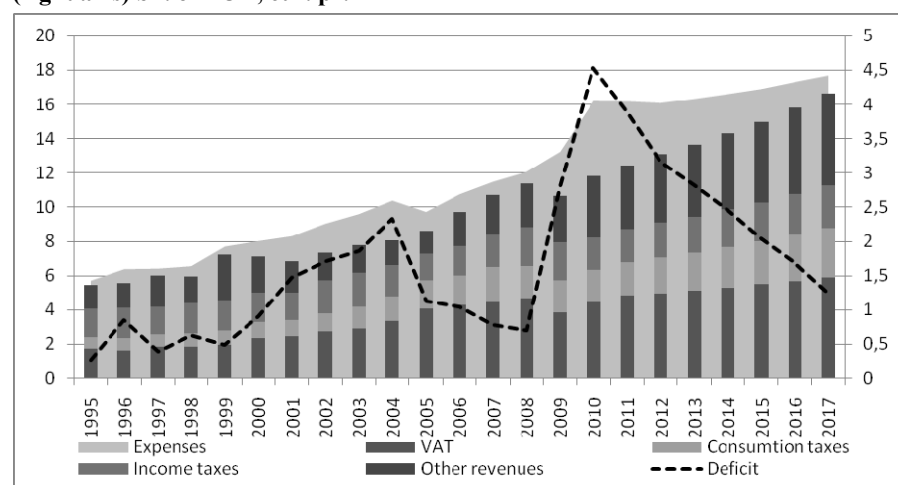


*Source:* Ministry of Finance of the SR; authors.

Another significant factor will be the development of the exchange rates. We
have already mentioned the risks of too strong or too weak Euro in our region.

A lot of uncertainty lays in the future features of the fiscal policy. If the cur-
rent massive expansive character persists and the budget revenues would not
fulfil the government's expectations, the state budget deficit should be financed
by the increasing debt (Graph 7). Targeted deficit of the public finances under
3% seems to be rather unrealistic according to its planned date and we estimate
its delay until 2013 or 2014. As other members of the European Monetary Union
have also problems with the deficit, we expect the EU not to impose sanctions
for violation of the Stability and Growth Pact.

Despite the fact that an external factor – the EU funds resources (NSRF) will
remain unchanged, their redistribution in the Slovak economy is still problem-
atic. The current delay in drawing of these resources is serious and can lead to an
inefficient use or even to the loss of them (Radvanský and Páleník, 2008).

The low interest rates of the ECB will probably persist for a longer time in
order to make the capital more available. Despite that, it is necessary to mention
that in the long term, monetary policy of the ECB may not reflect the real needs
of a small and highly opened economy like Slovakia.

## Conclusions

This paper presents a cautious forecast of the future development of the Slovak economy. Currently, Slovakia goes through an after-crisis period that highly depends on the development of external factors. Crucial is mainly the speed of recovery of foreign demand as well as the investments. The domestic economic policy and private economic activities will also have a big influence. After a fall of the Slovak economy of almost 5% in 2009, we expect a slight growth in 2010. In following years, we estimate a short period of stagnation with a successive increasing of the GDP growth up to positive real growths rates at 5% level in the horizon of the forecast.

We mentioned risks of the forecast showing possible deviations of estimated variables in both directions. The dynamics of the external environment is the most important factor, which cannot be influenced by the domestic economic policy. The arrangements of Slovak economic policy have some positive potential, whereas their real effect on recovering the sustainable growth is doubtful. Considering long-term targets of the economic policy, it would be more appropriate to use systematic solutions and tools affecting the labour market and the business environment. Also the ability to draw supportive EU resources in an adequate amount transparently and efficiently seems to be problematic.

Considering the use of model techniques, the most risky variable appears to be the state budget tax revenues, where we expect rather lower values than estimated ones. Therefore, the public finance deficit can be even higher. On the other hand, the anticipated development on the labour market could be more optimistic, the forecasted rate of unemployment is at the low edge of the estimation.

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# Attachment

## Forecast of the Development of the SR 2010 – 2015

| | Actual | | | | | Forecast | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | bil. EUR | | | bil. EUR | Growth (in %) | Growth (in %) | | | | | | |
| **GDP components, const. pr. 2005** | **2006** | **2007** | **2008** | **2009** | | **2010** | **2011** | **2012** | **2013** | **2014** | **20015** | **Average 2010 – 2015** |
| Gross domestic product | 53.5 | 59.1 | 62.8 | 59.9 | –4.6 | 2.5 | 3.3 | 4.1 | 4.6 | 5.0 | 5.3 | 4.13 |
| Final consumption of households | 29.4 | 31.5 | 33.4 | 33.2 | –0.7 | 1.0 | 3.1 | 5.1 | 4.8 | 4.5 | 4.7 | 3.87 |
| Formation of gross fixed capital | 14.3 | 15.6 | 15.9 | 14.2 | –10.5 | 3.5 | 5.1 | 5.7 | 5.8 | 6.3 | 6.7 | 5.52 |
| Final consumption of government | 9.9 | 9.9 | 10.4 | 10.7 | 2.8 | 12.0 | 4.6 | –2.5 | –2.0 | –0.3 | 0.3 | 2.02 |
| Import of goods and services | 41.5 | 45.3 | 46.7 | 38.5 | –17.6 | 10.1 | 7.8 | 8.0 | 9.3 | 9.7 | 9.9 | 9.13 |
| Export of goods and services | 40.9 | 46.8 | 48.3 | 40.3 | –16.5 | 9.1 | 7.1 | 8.1 | 9.5 | 10.3 | 10.6 | 9.12 |
| | | | | | | | | | | | | |
| Net export, bill. EUR | –1.5 | 6.2 | 7.0 | 1.3 | | 0.8 | 0.4 | 0.6 | 1 | 1.6 | 2.3 | 1.12 |
| | | | | | | | | | | | | |
| **Labour market LFS** | **2006** | **2007** | **2008** | **2009** | | **2010** | **2011** | **2012** | **2013** | **2014** | **20015** | **Average 2010 – 2015** |
| Econ. active population, thous. of people | 2 654.8 | 2 649.2 | 2 691.3 | 2 690.0 | | 2 708.3 | 2 713.3 | 2 718.7 | 2 721.3 | 2 723.0 | 2 719.9 | 2 717.42 |
| Employment, thous. of people | 2 301.4 | 2 357.3 | 2 433.8 | 2 365.8 | (–68 thous.) | 2 370.0 | 2 411.7 | 2 451.1 | 2 486.3 | 2 516.3 | 2 540.1 | 2 462.58 |
| Unemployment, thous. of people | 353.4 | 291.9 | 257.5 | 324.2 | (+66 thous.) | 338.3 | 301.6 | 267.7 | 235 | 206.7 | 179.8 | 254.85 |
| Unemployment, % | 13.3 | 11 | 9.6 | 12.1 | | 12.5 | 11.1 | 9.8 | 8.6 | 7.6 | 6.6 | 9.37 |
| | | | | | | | | | | | | |
| **Wages** | **2006** | **2007** | **2008** | **2009** | | **2010** | **2011** | **2012** | **2013** | **2014** | **20015** | **Average 2010 – 2015** |
| Average nominal monthly wage, EUR | 622.8 | 668.7 | 723 | 744.5 | 3 | 762.1 | 793.8 | 826.4 | 868.6 | 923.9 | 991.4 | 861.03 |
| Real wage growth, % | 4.2 | 5.4 | 4.0 | 1.4 | | 0.45 | 1.54 | 1.55 | 2.34 | 3.64 | 4.58 | 2.35 |
| Real productivity growth, % | 4.5 | 8.1 | 3.5 | –2.2 | | 2.2 | 1.5 | 2.4 | 3.1 | 3.8 | 4.3 | 2.88 |
| | **2006** | **2007** | **2008** | **2009** | | **2010** | **2011** | **2012** | **2013** | **2014** | **20015** | **Average 2010 – 2015** |
| Consumer price index, inflation, % | 4.3 | 1.9 | 3.9 | 0.9 | | 1.7 | 2.4 | 2.50 | 2.70 | 2.60 | 2.60 | 2.42 |
| Tax revenues, bil. EUR | 7.7 | 8.4 | 8.8 | 8.0 | | 8.4 | 8.9 | 9.3 | 9.7 | 10.1 | 10.6 | 9.5 |
| SB expenditures, bil. EUR | 10.7 | 11.5 | 12.1 | 13.3 | | 16.2 | 16.2 | 16.1 | 16.4 | 16.6 | 16.9 | 16.4 |
| SB deficit, % GDP | 1.8 | 1.3 | 1.0 | 4.3 | | 6.8 | 5.5 | 4.20 | 3.50 | 2.9 | 2.2 | 4.18 |
| SB deficit, bil. EUR | 1.1 | 0.8 | 0.7 | 2.8 | | 4.5 | 3.9 | 3.2 | 2.8 | 2.4 | 2.0 | 3.13 |

*Source:* Statistical Office of SR; authors.