



NÁRODNÁ BANKA SLOVENSKA
EUROSYSTEM

CHAPTER 7

ECONOMIC RESEARCH

7



7 ECONOMIC RESEARCH

Most of the economic research conducted at Národná banka Slovenska is in the area of applied research. Its purpose is to improve understanding of the causes and conditions of particular economic and financial phenomena. The findings are a valuable source of information for monetary-policy decisions and for economic policy formation in general, and they provide answers to topical professional questions concerning economic, monetary and financial developments. The research is focused mainly on those economic and financial issues that tend to require unconventional and more comprehensive solutions. Most of the research studies are published.

The Research Department is responsible for the economic research conducted at NBS, and it accomplishes many tasks in this area with co-researchers from Slovakia and abroad. The most notable results and findings of 2011 were all published. The more extensive outputs are published as peer-reviewed working papers (WP); analyses and findings not included in working papers are published as discussion papers (DP) or specialist analyses – mostly policy papers (PP) and occasional papers (OP). The Research Department also produces the NBS Financial Stability Report, a key biannual report that assesses the financial stability situation in Slovakia.

NBS economic research work focuses on six core areas: monetary policy and inflation; fiscal policy; financial stability; the labour market and real economy; economic modellings; and the euro and convergence. To ensure that its research reflects current trends in regard to the topics addressed and methods used, the Research Department engages in international cooperation at various levels. A special research committee comprising experts from Slovakia and abroad guarantees the quality and professionalism of the research outputs of individual researchers by regularly monitoring and approving their research targets. In order to help ensure that its own research work is in line with that of other euro area national central banks, NBS is represented at meetings of

the research department directors of the other NCBs.

In 2011 NBS published a total of ten research papers intended for the public, including six peer-reviewed working papers. In addition to producing these papers, which are published on the NBS website,⁴¹ staff members of the Research Department cooperated with members of other NBS departments in producing two Financial Stability Reports.⁴²

The Financial Stability Report for the first half of 2011 evaluated the most important factors affecting financial stability in Slovakia during the period under review. There was a moderate deterioration in financial stability conditions, particularly in regard to the escalation of external risks. Favourable developments in the domestic economy were reflected in lower costs of non-performing loans and in a year-on-year rise in the banking sector's net profit. Considering the extent of accumulated macroeconomic imbalances in the euro area, conditions for sectors of the domestic economy are expected to remain difficult. The domestic banking sector must reckon on an increase in losses from credit and market risks. According to stress testing results, the banking sector is strongly resilient to relatively large losses on non-performing loans to enterprises and households and on the revaluation of its securities holdings. The Report also included two annexes on specialist topics: the first looked at stress indicators for the financial system, including their methodology, construction and the ways they may be applied; the second analysed the financial position of non-financial corporations in Slovakia.

The published papers helped further our knowledge about the Slovak economy and its interrelations with other European countries. The research shows that the convergence of the Slovak economy and the other three V4 countries' economies towards the euro area economy has been gradually improving, from an original low. The economic level of the V4 countries moved closer to the euro area level during the eco-

⁴¹ <http://www.nbs.sk/en/publications-issued-by-the-nbs/working-papers>

⁴² <http://www.nbs.sk/en/publications-issued-by-the-nbs/nbs-publications/financial-stability-report>



conomic crisis. With modern economic models, it is possible to quantify not only the impacts of fiscal policy adjustments, but also the effects of changes in other areas on the Slovak economy. The results of a new cost-benefit analysis of Slovakia's entry into the euro area, based on a DSGE model, indicated that the benefits outweighed the costs.

A periodic analysis of the convergence of EU economies confirms that the process of real catching-up is picking up, except in countries hardest hit by the debt crisis. In the years ahead, however, the majority of countries under review will report an excessive deficit or an inflation rate above the reference value.

New research in the area of fiscal policy is addressing fiscal consolidation efforts and the critical debt threshold in EU countries. Different governments are responding to mounting debt in different ways. Some did not take advantage of strong economic growth to consolidate public finances and have reached a critical debt threshold. An analysis of tax rate changes and harmonisation in the euro area indicate that such steps will have an effect on macroeconomic indicators in the countries under review. Potential tax harmonisation may increase the euro area's ability to face common shocks, or it may weaken its resilience to shocks originating outside the euro area.

New findings concerning wage flexibility and wage cost adjustments indicate that base wages in Slovakia are less flexible than those in other EU countries. On the other hand, firms are making increasing use of other components of employee compensation, especially those firms where there are base wage rigidities. It is clear that wage flexibility is closely related to the skill level of employees and to the effect of trade unions.

NBS contributes to expert discussions by organising seminars and scientific conferences at which research staff can exchange their knowledge and expertise. The results of their work are also presented to students of universities and secondary schools through thematic lectures. In 2011 NBS hosted more than thirty research seminars, which play a key role in the exchange of knowledge. The attendees – more

than half from foreign institutions – presented the results of their work, including several findings that had yet to be published. The most eminent of the guests in 2011 was Professor Andrew K. Rose of the University of California, Berkeley, who gave a lecture entitled "Causes and Consequences of the 2008 Crisis: An Update".

NBS continued to cooperate with international research teams in 2011 and it was represented in three ESCB expert groups that performed research-related activities. NBS was also represented at initial meetings that are expected to result in the establishment of a research network focused on the highly topical issues of EU countries' and firms' competitiveness.

The first expert group of which NBS is a member is the Household Finance and Consumption Network (HFCN), whose main task is to examine the financial situation and consumption expenditure of households. Following an extensive survey of European households, the processing of their responses was carried out in 2011. Since some respondents declined to answer certain sensitive questions, special attention was paid to the estimation and imputing of missing data. NBS was among the first three national central banks that completed the processing of the survey results and will soon be able to begin analysing them. Analysis of the collected data will help to further understanding of how macroeconomic shocks and monetary-policy or institutions changes affect different household groups. The research is expected to contribute in particular to explaining the principles of savings accumulation and household debt growth.

Another topical issue is financial stability and its interconnection with the real economy. The Macro-prudential Research Network (MaRs) is engaged in research in the following areas: macro-financial models linking financial stability and the performance of the economy; early warning systems and systemic risk indicators; and assessing contagion risks. In its cooperation with the MaRs, NBS is mainly involved in research in early warning systems and systemic risk indicators. A first proposal for a monthly and quarterly stress indicator for Slovakia was produced during 2011.



The third research-related expert group is the Working Group on Econometric Modelling (WGEM). This research is divided into three core areas: first, the modelling of potential output within DSGE models; second, the benefits and costs of fiscal consolidation, and, third, macro-

financial links. Experts from the NBS are actively engaged in research in the third of these areas, focusing in particular on the transmission of shocks from the financial sector to the real economy and potential negative feedback loops on the financial sector.

Box 1

PAPERS PUBLISHED IN 2011

Michal Benčík

Business cycle synchronisation between the V4 countries and the euro area

In assessing the overall costs and benefits of the single European currency, an important factor is the extent of business cycle synchronisation between the V4 countries and euro area. This paper addresses the issue of business cycle synchronisation of the V4 countries by directly calculating cross correlations, by calculating cross correlations from primary impulses, and finally by calculating output gap component correlations from common and country-specific shocks. In regard to the output gap, the results of all three methods are approximately the same: before 2001, the business cycles of the V4 countries were not synchronised with the euro area (low or negative correlations); between 2001 and 2007, the correlations entered positive territory as the V4 countries joined the EU and trade between the V4 countries and the euro area increased; and during the economic crisis of 2008–2009, synchronisation increased still further.

Tibor Lalinský

Analysis of the Slovak economy's convergence in 2011

The real convergence of the Slovak economy picked up in 2010. In terms of productivity growth and per capita GDP growth, Slovakia was again among the best performing EU countries. Several euro area countries are, however, only slowly recovering from the repercussions of the financial and economic crisis. In May 2011 only Finland would have ful-

filled the Maastricht criteria for the adoption of the euro. The process of nominal convergence is expected to recover again in 2012. Slovakia, however, like most EU Member States and EU candidate and potential candidate countries, will in the next two years probably report an excessive deficit or an inflation rate above the reference value. Among the non-euro area EU countries, only Sweden is likely to meet both of these criteria at the same time. As for the EU candidate countries, only Montenegro is recording stable nominal indicators. Those countries hardest hit by the debt crisis are expected to show the weakest nominal convergence and a deterioration in several real convergence indicators.

František Hajnovič, Juraj Zeman, Ján Žilinský

The fiscal consolidation measures and the critical debt threshold in the EU and Slovakia

The aim of this paper is to estimate the response of EU governments to their debt ratios and to determine the critical debt threshold on the basis of data for the years 1995 to 2009. The emphasis is on a methodological approach and on the interpretation of results. The paper draws heavily on an IMF working paper in which it is assumed that the government response (i.e. the primary deficit) can be expressed as a cubic polynomial of the past debt ratio. The authors expressed the government response as a fourth degree polynomial and they interpreted the response dynamics as a model with an error-correcting element. The work was supplemented with debt ratio analysis for selected countries. An empirical panel



estimation with fixed effects and analysis demonstrated that individual countries responded differently to the debt ratio. Certain EU countries did not take advantage of the period of strong economic growth to consolidate public finances and they had reached the critical debt threshold by the end of 2009. The paper looks in more detail at debt ratio of Slovakia and its outlook.

Matúš Senaj , Milan Výškrabka
European taxes in a laboratory

Labour tax rates are considerably heterogeneous across European countries. This paper investigates the effects of a policy experiment in which the tax rates levied on labour are harmonised in euro area countries. Using a four-country DSGE model, the authors find that shifts in domestic tax rates are the main driver of the total outcome of the policy change while spillover effects are rather limited in the long run. Countries that decrease their total tax wedge boost their economies while countries that increase their tax wedge lose a proportion of output. The adjustment process is rather complicated: a country which gains in the long run may temporarily go through a period of dampened economic activity. In terms of volatility, the euro area with its homogenous labour tax system may be better prepared to face common area-wide shocks. On the other hand, shocks originating outside the euro area may increase the volatility of euro area output under the homogenous tax regime.

Marianna Červená
Base wage rigidities

Using data from a survey of Slovak firms, this paper examines the extent to which Slovak wages are rigid and the determinants for both nominal and real wage rigidity.

It takes account of two distinct definitions of wage rigidity, where nominal rigidity is related to the freezing of wages and real rigidity to wage indexing. Compared with the other countries that took part in the survey,

Slovakia has a nominal base wage rigidity that is one of the highest and a real base wage rigidity that is also relatively high. The author runs multinomial logit regressions to capture the relationship between real wage rigidity, nominal wage rigidity, flexible wages and a number of firm-specific and institutional characteristics. The regression results suggest that the skill-level of the workforce matters: firms with mainly low-skilled workers face lower probabilities of wage rigidities. Collective bargaining coverage is also a significant determinant. Firms that are subject to a collective agreement with firm-level trade unions face increased probabilities of both types of wage rigidities compared to firms that are not subject to such agreements. On the other hand, firms dealing with trade unions at the sectoral level have more flexible wages than firms not subject to any collective bargaining.

Marianna Červená
Labour cost adjustment

This paper analyses the results of a survey on how Slovak firms adjust wages and prices. The author focuses on the reduction of labour costs in two forms: base wage cuts and alternative margins for labour cost reduction. Anecdotal evidence suggests that wage-cutting by firms occurs more frequently in Slovakia than in any other country and that the use of alternative margins for labour cost reduction is also quite prevalent in Slovakia. Regression results support the strong relationship between the use of alternative margins and wage rigidities. The use of any alternative margin is on average 30% more likely in firms facing nominal wage rigidity than in firms with flexible wages.

Juraj Zeman
Costs and benefits of Slovakia entering the euro area: A quantitative evaluation.

Entering monetary union brings both drawbacks and benefits. The loss of an independent monetary policy, including the loss of exchange rate policy, constrains the ability to



stabilise domestic economy in the event of asymmetric shocks. This leads to more volatile business cycles and hence lower utility of risk-averse agents in the economy. On the other hand, the common currency reduces transac-

tion costs, thus increasing trade and growth. The objective of this article is to quantitatively evaluate these costs and benefits, using an estimated DSGE model for two countries: Slovakia and the euro area.