



6 ECONOMIC RESEARCH

The economic research conducted at Národná banka Slovenska deals with challenging economic, monetary and financial issues that require complex and often technically demanding solutions. The prevailing part of the research activity takes form of applied research. Although the Research Department generates most of the research performed at NBS, a number of its outputs are the result of collaboration between its staff members and experts from other institutions (both domestic and foreign) and academia. The cooperation helps bridge the gap between research and its practical application.

The specific research tasks undertaken at any given time reflect the focus of the medium-term research strategy approved by the NBS Bank Board and the current needs of NBS. Professional oversight of the research agenda is ensured by the NBS Research Committee, composed of experts from Slovakia and abroad.

A key factor in advancing the bank's research is its cooperation on international research projects. A majority of co-authors are, naturally, from other central banks of EU countries, linked within the European System of Central Banks. This cooperation takes place mainly within Eurosystem/ESCB research networks, and in 2015 NBS was involved in three such networks.

The Household Finance and Consumption Network (HFCN) spent most of 2015 processing data from the new wave of the Eurosystem's Household Finance and Consumption Survey (HFCS). New information about the financial situation and expenditures of euro area households provided material for several research papers. The principal findings from the survey of Slovak households for the HFCS were published in an NBS occasional paper. The anonymised survey data were provided to first external researchers.

Experts involved in the Wage Dynamics Network (WDN), which examines labour market adjustments, also focused on the processing of the new

survey data. The WDN's survey presents interesting facts about wage and price formation, as well as about firms' approaches to employment in the post-crisis period.

Cooperation within the Competitiveness Research Network (CompNet) concerned mainly the preparation, finalisation and initial application of a new database of competitiveness indicators based on firm-level data. This cooperation provided an impetus for several papers published by NBS in 2015.

Another important form of international cooperation is participation in international conferences and seminars. In 2015 NBS staff members presented their work at a number of academic conferences in Slovakia and abroad.

NBS has for many years organised seminars for the presentation of research results, mainly by domestic experts. In 2015 NBS organised or co-organised more than 34 seminars. Nine of them had a discussion format that broadly addressed current economic issues. Seven were conducted as part of the series of Bratislava Economic Seminars, organised jointly by NBS, the Department of Economic Policy at the University of Economics in Bratislava, and the Centre for Economics and Finance of the Faculty of Mathematics Physics and Informatics at Comenius University in Bratislava. These seminars are important way of bringing foreign experts to Slovakia and learning more about their work.

The contribution of NBS's research to professional discourse is based mainly on its specialist publications. The more wide-ranging outputs of NBS research are published as peer-reviewed working papers, discussion papers or policy papers⁴¹. NBS published a total of ten papers in 2015 as well as several analytical commentaries. Most of the research concerned approaches to economic modelling, but other topics were also addressed, including the labour market, real economy, monetary policy and inflation.

⁴¹ Full texts of NBS research papers can be found on the NBS website, at <http://www.nbs.sk/en/publications-issued-by-the-nbs/research-publications>



The economic modelling research concerned mainly the forecasting of economic indicators. Among the outputs was a proposal for a new test allowing the selection of a statistically appropriate prediction bands for estimated variables. A follow-up paper presented a new validation test for forecasting techniques and models. The application of the test on selected forecasts of leading economic indicators in the United States indicates that analysts' forecasts of key macroeconomic and financial indicators are no more accurate than simple statistical methods. Another paper based on joint international research into GDP modelling did not result in a specific model applicable to all central and eastern European countries, but rather a recommendation that several short-term models be used simultaneously. A fourth paper on the topic of forecasting examined the quality of the approach currently used at NBS and recommended the use of factor models for GDP forecasts.

Research on household finances yielded interesting findings about the relationship between the indebtedness of Slovak households and their net wealth. Whereas non-mortgage debt has a substantial negative impact on households' net wealth, the impact of mortgage loans is neutral. Although households in larger towns and cities and in more developed regions of Slovakia are wealthier, they are also more indebted. The results of the survey conducted as part of the latest wave of the HFCS showed an increase in the debt of Slovak households and a decline in their net wealth. The fresh data also indicate that the distribution of wealth has shifted in favour of the wealthiest households.

An analysis of new firm-level data about the labour market and price formation in the post-crisis period supported several findings identified at the macro level (stagnating employment, increasing wages and marked differences between sectors in terms of their recovery). Wage rigidity and collective bargaining were the key factors observed in employment and wage de-

velopments. Large firms and foreign-owned firms face fewer obstacles in adjusting to labour costs. Supranational research on the competitiveness of non-financial corporations showed that productivity distribution across firms in a country has a significant effect on the country's international trade developments. Firms able to export their output are more productive, and productivity growth correlates with firms' experience.

Research on the convergence of the Slovak economy towards the EU average suggested that since 2008 Slovakia had managed to sustain an upward trend in terms of its competitiveness, with non-price factors playing an important role. This research also highlighted the risk that Slovakia's shortcomings in institutional competitiveness could result in a long-term hiatus in the process of its catching up with the performance and living standards of advanced economies.

The monetary policy research conducted at NBS in 2015 focused on reviewing the validity of key monetary facts. Based on a sample of 43 countries over the period since the Second World War, the research showed significant weakening in the long-run relationship between monetary aggregate growth and inflation. By contrast, the relationship between excessive credit growth and the outbreak of financial crises strengthened.

The results of international research projects involving NBS staff members are often disseminated in working papers or occasional papers published by the ECB or other foreign institutions. In 2015 NBS researchers co-authored two ECB working papers, one working paper of the Magyar Nemzeti Bank and one paper of the Oesterreichische Nationalbank⁴².

The most notable results of NBS research are published in academic journals. Besides several articles in domestic journals, some results are published in international refereed journals⁴³.

⁴² ECB Working Paper 1764; *Assessing European competitiveness: the new CompNet micro-based database*; ECB Working paper 1788; *Assessing European firms' exports and productivity distributions: the CompNet trade module*; MNB Working Paper 1/2015; *Explaining Bond and Equity Premium Puzzles Jointly in a DSGE Model*.

⁴³ Including the *Journal of Time Series Analysis*, *Applied Economic Letters*, and the *Czech Journal of Economics and Finance*.