Ekonomický ústav SAV
Institute of Economic Research SAS

MIER 2022

Meeting of the Institute of Economic Research
1st International Conference
Institute of Economic Research SAS

10-11 November 2022
Smolenice, Congress Centre of SAS Smolenice, Slovakia

Conference Programme and Book of Abstracts

Organized by:
Institute of Economic Research, Slovak Academy of Sciences,
Bratislava, Slovakia

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Institute of Economic Research SAS

MIER 2022

Edited by: Miroslava Jánošová

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Foreword

Dear colleagues,

the demand for decision-supportive information increases in crises, such as those created by the Pandemics of COVID-19 or the conflict in Ukraine. Economic research joins a broader stream of social research in addressing these challenges. The emphasis on policy relevance and decision-making practice is firmly embedded in the activities at the Institute of Economic Research of the Slovak Academy of Sciences (IER). Building on these activities, we have decided to organise a meeting of partners, colleagues, clients and potential project collaborators. The Meeting of the IER – MIER served this purpose for the first time in November 2022. We are pleased to announce that it has served its purpose well and deserves a continuation in MIER 2023.

While we hope for a quick recovery from the abovementioned crises, everyone is confident that the consequences of climate change and population ageing will accompany us for decades ahead. IER has research teams with activities covering these long-term challenges; MIER 2022 sheltered presentations assessing the design of the Slovak pension system or the impact of working immigration on its sustainability. In addition to ageing, the labour market will also be changing by technological advancements, which imply automation, decoupling of labour and productivity growth, and increased importance of online and big data in supporting and evaluating employment services and making career decisions.

While facing the challenges ahead, Slovakia also inherits problems that originated in the past, such as regional disparities, perils related to the European integration and drawing of the European Cohesion and Structural Funds. Researching these historical causes might help improve the sustainability of public finance, macroeconomic stability, capitalisation and investments, and price dynamics.

Finally, small and open economies need to understand the dynamics of their international environment. Although the rules applied here are mainly beyond the direct reach of Slovak decision-makers, research leading to a better understanding of the global financial markets and capital flows generates more competent reactions and mitigation measures addressing changes in the international environment.

We are grateful that presentations on all these various topics were delivered and discussed at MIER 2013. Our thanks go to our colleagues and project partners, including researchers from the foremost Slovak universities, analytical units of the Governmental Office and various ministries, but also international partners from Hungary and the Czech Republic.

We look forward to welcoming you at MIER 2023 on the 15th-16th of November 2023.

Bratislava, November 2022

MIER 2022 Organisation Committee:

Tomáš Domonkos
Miroslava Jánošová
Štefan Lyócsa
Marek Radvanský
Mária Širáňová
Miroslav Štefánik

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MIER 2022

Conference Programme

MIER 2022

Conference programme

Wednesday 9. 11. 2022

17:30 - 18:00 Early Registration

18:00 - 20:00 Diner

Thursday 10. 11. 2022

9:00 - 9:15 Conference opening - CONGRESS HALL

Parallel Sessions

Meeting room: CONGRESS HALL

9:20 - 11:20 Employment policy programme evaluation
Chair: Miroslav Štefánik

Lukáš Lafférs	*Applying double machine learning in policy evaluation*
Miroslav Štefánik	*Take a complete picture of the Youth Guarantee*
Katarína Vaľková	*The effectiveness of job retention schemes during the COVID-19 lockdown*
Igor Líška	*Profiling of newly registered jobseekers using machine learning*

Meeting room: HUNTIG SALON

Macro- and micro-finance modelling
Chair: Eduard Baumöhl

Mária Širaňová	*Sustainability of External Positions in EU Countries in Light of Illicit Capital Flows*
Filip Ostrihoň	*Comparing Various Prediction Intervals for ECB Euro/USD Rate Forecasts*
Eduard Baumöhl	*Firm efficiency, public procurement, and corruption: The case of Slovakia*
Boris Fišera	*Duration of Economic Recoveries: The Role of Macroeconomic, Institutional and Policy Factors*

11:30 - 13:00 Lunch

Parallel Sessions

Meeting room: CONGRESS HALL

13:00 - 15:00 Systemic risk on financial markets
Chair: Štefan Lyócsa

Zuzana Košťálová	*New credit drivers: results from a small open economy*
Eduard Baumöhl	*Interconnectedness of Financial Institutions around the world: Systemic risk to Slovak banking system?*
Štefan Lyócsa	*Estimating and predicting the financial cycle*
Štefan Lyócsa	*Summary of the APVV-18-0335 project's outputs*

Meeting room: HUNTIG SALON

Challenges of demographic ageing in Slovakia and possiblities to eliminate its negative impacts
Chair: Ivan Lichner

Sergei Kharin	*Horizontal price transmission and market integration for agri-food products: nonlinear approach*
Tatiana Jašurková	*Pension system models with a child factor*
Raman Herasimau	*Immigrants' impact on life cycle deficit in Slovakia*
Ivan Lichner	*Regional dimension of labour market mismatch - case of Slovakia*

15:00 - 15:30 Coffee Break

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Parallel Sessions

Meeting room: CONGRESS HALL

15:30 - 17:30 Labour market trends
Chair: Tomáš Miklošovič

Sofia Karina Trommlerova	*Cash Transfers and Fertility: How the Introduction and Cancellation of a Child Benefit Affected Births and Abortions*
Lucia Mýtna Kureková	*Online Job Vacancy data processing - overview of the existinf approaches*
Martin Lábaj	*Job-destruction or job-creation? The impact of automation on the labour market*
Daniel Gerbery	*Low wages as a trap in Central Europe?*

Meeting room: HUNTIG SALON

Consequences of climate change
Chair: Jaroslav Vokoun

Juraj Sipko	*Climate change impact on macroeconomic and financial stability*
Mária Kačírková	*Use of geothermal energy in context of environmental challenges: barriers and opportunities*
Daneš Brzica	*Cities facing environmental challenges: focus on selected SDG 11 criteria and air pollution issues*
Jaroslav Vokoun	*Sources of changes in the behavior of actors in reducing the consequences of climate change*

18:00 Conference Dinner

Friday 11. 9. 2022

Parallel Sessions

Meeting room: CONGRESS HALL

9:00 - 10:30 APVV-20-0621 Hybrid modelling system for regional policy evaluation: regional, industry and
Chair: Marek Radvanský

Ivan Lichner	*Integrated regional econometric input-output model of the Slovak Republic - comparative analysis*
Boris Fišera	*EU-wide wage floor: harmful idea?*
Patrik Kupkovič	*Price Module: A Phillips Curve as the main building block*
Marek Radvanský	*Uncertainty in forecasting GDP in the CEE region after 2020*

Meeting room: HUNTIG SALON

APVV-20-0499 Macroeconomic aspects of illicit financial flows
Chair: Maria Širaňová

Brian König	*Abnormal FDI as a driver of sudden stop episodes*
Menbere Workie	*From High Capital Flight to Low Domestic Investment? An Empirical Examination from a Meta-Analysis*
Mária Širaňová	*Summary of the APVV-20-0499 project's outputs*

10:30 - 11:00 Coffee Break

Parallel Sessions

Meeting room: CONGRESS HALL

11:00 - 12:30 APVV-19-0352 Transition from high to low dependence on public transfers in old age: can the multi-pillar pension system handle the negative consequences of population ageing?
Chair: Tomáš Domonkos

Štefan Domonkos	*Foreign workers in Slovakia: a novel dataset from the Social Security registry*
András Simonovits	*Pensions and inflation*
Ján Šebo	*Pension scheme performance as a matter of good design*
Tomáš Domonkos	*Wealth and transfer demand in SR*

Meeting room: HUNTIG SALON

VEGA 2/0097/19: Assessment and Prediction of Changes in the Slovak Economy in the Context of (Dis)Integration Tendencies in the EU
Chair: Karol Frank

Karol Frank	*Public finances in the wake of external shocks*
Martin Hudcovský	*Price development in Slovakia: from zero to hero*
Karol Morvay	*Slovak economy: scrambling across the threshold.*

12:30 Lunch

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Book of Abstracts

Applying double machine learning in policy evaluation

Lukáš Lafférs

Identification and estimation of causal effects from non-experimental data is the goal of a large part of econometrics. With the growing volume of data, methods that can process large amounts of information using machine learning methods are currently becoming more popular. Typically, machine learning methods are used for prediction, but now the object of interest is the estimation of parameters and the quantification of statistical uncertainty. In the presentation, I will present some of methods that have been developed, recent advances, but also their limitations.

Take a complete picture of the Youth Guarantee

Miroslav Štefánik
Co-autor: Lukáš Lafférs

Using administrative data on jobseekers registered by the public employment agency, we describe the implementation of the Youth Guarantee through the Slovak active labour market policy (ALMP). By adopting a novel, double-machine-learning-based, dynamic estimation technique, we generate evidence on the impact of various types of ALMP programmes provided in different periods of the unemployment spell. The spectrum of ALMP programmes ranges from classroom training through hiring incentives and subsidised employment in the private sector to public works organised at the municipality level. We identify the impact of participation in a particular ALMP programme or sequences of ALMP programmes on the absence from registered unemployment after three years. Our empirical approach allows painting a complex picture of the Slovak Youth Guarantee implementation, yielding evidence in line with international experiences generalised by ALMP impact-evaluation meta-analyses. We contribute to this literature, by generating affirmative evidence from a particular case study which is only allowed thanks to the advanced functionality of our estimator.

The effectiveness of job retention schemes during the COVID-19 lockdown

Katarína Vaľková
Co-autor: Vladimír Peciar

In our work we have examined the impact of three different short time work schemes on employment during the first wave of the COVID-19 pandemic in Slovakia. We apply the difference in differences (DiD) technique comparing treated firms with its synthetic controls that simulate the pre-pandemic behaviour. The presentation covers steps in finding the best identification strategy subject to various data and methodological limitations.

Profiling job seekers using machine learning methods

Igor Líška
Co-autors: Ján Komadel, Štefan Domonkos

The project's main goal is to use classification algorithms to assess whether a job seeker is likely or unlikely to find employment within the scope of one year. The sorting algorithm should not only be able to identify whether a job seeker is "risky", but also to what extent by assigning the probability of finding employment. This project aims to simplify the process of both helping job seekers and social workers alike.

Sustainability of External Positions in EU Countries in Light of Illicit Capital Flows

Mária Širaňová

Despite almost a decade of existence of the Macroeconomic Imbalance Procedure 12 EU countries have been in a state of external imbalances (EC, 2019). Illicit capital flows are one of the possible ways of financing and subsequently deepening external imbalances, but due to their nature, and thus the uncertainty associated with estimating their volume and structure, the literature investigating contribution of such flows to creation of external imbalances has been so far scarce. This paper aims at testing the sustainability of external imbalances in EU countries once accounting for volume of illicit capital flows derived by misinvoicing method and NEO-method with help of panel cointegration method.

Comparing Various Prediction Intervals for ECB Euro/USD Rate Forecasts

Filip Ostrihoň

The analysis provides an examination of prediction bands constructed using multiple different approaches with the application to the ECB forecasts of the EUR/USD exchange rate. Specifically, the exchange rate predictions were obtained from the ECB summer forecast for the EUR/USD external rate over years 2001-2022, which were available with annual frequency for a prediction horizon of up to three years (with the first year serving as a nowcast). Individual predictions were rearranged into 22 path forecasts with length of three elements. Of these, 10 path forecasts (covering period 2001-2012) were used as the evaluation sample for construction of prediction intervals and 9 path forecasts (spanning period 2011-2021) were used for the assessment of the conditional coverage of the prediction bands. The examined prediction intervals were marginal prediction bands, Bonferroni prediction bands, and two alternative variations of Scheffé bands, which were developed by Jordà, Knüppel, and Marcellino in 2013. The assessment of the conditional coverage was performed by a series of likelihood ratio tests suggested by Christoffersen in 1998. The preliminary results of the analysis indicate that examined Scheffé bands might be excessively wide when applied in the context of exchange rate path forecasts.

Firm Efficiency, Public Procurement, And Corruption: The Case Of Slovakia

Eduard Baumöhl
Co-autors: Tomáš Bačo, Tomáš Výrost

Despite almost a decade of existence of the Macroeconomic Imbalance Procedure 12 EU countries have been in a state of external imbalances (EC, 2019). Illicit capital flows are one of the possible ways of financing and subsequently deepening external imbalances, but due to their nature, and thus the uncertainty associated with estimating their volume and structure, the literature investigating contribution of such flows to creation of external imbalances has been so far scarce. This paper aims at testing the sustainability of external imbalances in EU countries once accounting for volume of illicit capital flows derived by misinvoicing method and NEO-method with help of panel cointegration method.

Duration of Economic Recoveries: The Role of Macroeconomic, Institutional and Policy Factors

Boris Fišera

This paper analyses the role of several macroeconomic, institutional and policy factors on the duration of economic recoveries over a sample of 414 recovery events observed in 67 countries during the period 1989-2019. Using a continuous-time Weibull duration model, this study starts by showing that economic recoveries are duration dependent, i.e., that their likelihood to end increases with their age. The results also show that the initial conditions are important determinants of the duration of economic recovery. In particular, economic recoveries last longer when the preceding recession was long, the currency (in nominal or real terms) is highly depreciated, the economy is more financially developed, investment is low, and the central bank is highly independent. Furthermore, fiscal and monetary policies proved to be relevant for the pace of economic recovery, with both fiscal impulse and lower interest rates contributing to faster recoveries. Finally, heterogeneities between advanced and emerging economies are found to be restricted to the impact of the macroeconomic factors but not to the duration dynamics per se.

New credit drivers: results from a small open economy

Zuzana Košťálová
Co-autors: Štefan Lyócsa, Eva Horvátová, Peter Gernát

In developed economies, macroeconomic indicators such as unemployment and price indices tend to predict new credit expansion. We explore whether business and consumer surveys complement traditional macroeconomic variables in predicting new household and corporate loans in the following 3, 6, 9 and 12 months. Using monthly data for Slovakia, starting in 2009 and ending in 2019, we use Bayesian model averaging to examine 102 potential credit drivers. Our results show that, with the exception of interest rates and unemployment, traditional macroeconomic variables do not seem to drive credit market development. Instead, survey-based perceptions, calendar effects and policy uncertainty show relevant predictive power.

Interconnectedness of Financial Institutions around the world: Systemic risk to Slovak banking system?

Eduard Baumöhl

The importance of systemic risk assessment and contagion in the banking sector has increased considerably since the global financial crisis (GFC) and the European sovereign debt crisis (ESDC). Empirical literature shows that the degree of interdependence among banks is a determining factor of systemic risk. In this paper, we examine the tail interconnection among 346 large financial institutions around the world. We construct a new systemic risk index using the cross-quantilogram approach. The results show that the systemic risk undergoes substantial time variations around crisis periods and its level has never been as high as during the first wave of the Covid-19 pandemic, due to the sudden stock market downturn in early 2020. In addition, our approach allows identifying the systemic risk profile of each bank in the network, as a risk transmitter or a risk receiver.

Estimating and predicting the financial cycle

Štefan Lyócsa

Financial cycles are assumed to reflect the dynamics and interconnectedness between the credit, housing and stock markets, which are all important components of the overall financial stability.
Estimates and accurate financial cycle forecasts could be useful for sound macro-prudential policy making and investment planning. In this study, we estimate the financial cycle for Slovakia and use machine learning techniques to predict 3- and 6-month-ahead levels of the financial cycle. The prediction accuracy is compared across multiple models and driven by a set of 170 potential predictors, including indicators related to banks, financial market, monetary policy, labor market, economic activity, business and consumer confidence and calendar effects.

Horizontal price transmission and market integration for agri-food products: nonlinear approach

Sergei Kharin

An enormous literature has addressed the functioning of markets that are separated by space, form and time. We focus on spatial (horizontal) price linkages among V4 countries markets for agri-food products. Horizontal price transmission analysis provides specific evidence as to the competitiveness of markets and the pricing efficiency. We are going to complete the study on agri-food price transmission analysis in the aspect of nonlinear GAM modeling. GAM can perform better than a classic regression and allow modeling nonlinear relationships in a flexible way. Our approach is so-called semi-parametric and is extension to an extensive literature that developed regression models of the market integration and price transmission.

Pension system models with a child factor

Tatiana Jašurková
Co-autors: Igor Melicherčík

The long-term trend of population aging and low fertility rates comes with wide-ranging economic implications, one of which is a sustainability problem of the PAYG pension systems. As the main financial source of the PAYG pension system are the regularly paid individual contributions, the stability of such pension scheme lies within a continuous replacement of the generations. The upbringing of an offspring thus becomes as important of a contribution to the pension system as the payment of contributions itself. Recent legislative changes in the old-age pension system of the Slovak republic introduce the parental bonus to establish the principle of fairness in the care of minors, such that the upbringing of a child should not have a negative effect on one's pension benefit. Therefore, in our work, we will focus on the study of the pension system schemes that implement the so-called child factor in order to compensate for the opportunity costs of having children.

Immigrants' impact on life cycle deficit in Slovakia

Raman Herasimau

The National transfer account methodology helps to specify the system of national accounts in terms of generational allocation of resources, but at the same time it doesn't include population of immigrants in the country. The steady growth of the number of immigrants dictates us to take them into consideration. Preliminary results show that NTA methodology overestimates impact of native population what leads to underestimation of life cycle deficit, in other words the per capita LCD differs from the one without immigrants.

*This work was supported by project no. VEGA 2/0143/21

Regional dimension of labour market mismatch – case of Slovakia

Ivan Lichner

Additional measure of the labour market matching process efficiency is proposed and presented. This indicator takes a form of linear model quantifying minimal geographical distance between the vacancies and unemployed. Slovak labour market is dominated by significant concentration of the vacancies and unemployed on the other sides of the country. The distance is the highest for the low educated and the limitations of the underlying data are discussed. Implications for employment and economic policies were suggested.

*This work was supported by project no. VEGA 2/0143/21.

Cash Transfers and Fertility: How the Introduction and Cancellation of a Child Benefit Affected Births and Abortions

Sofia Karina Trommlerova
Co-autors: Libertad González

We study the impact of a universal child benefit on fertility, identifying separately the effects driven by conceptions and those by abortions, and analyzing the potentially asymmetric impact of the benefit's introduction and its later cancellation. We focus on a generous lump-sum maternity allowance that was introduced in Spain in 2007 and then eliminated in 2010. Using administrative, population-level data, we create a panel data set of the 50 Spanish provinces, with monthly data on birth rates and weekly data on abortion rates between 2000 and 2017. Our identification is based on the timing of the introduction and cancellation of the policy (both announcement and implementation), from which we infer when the changes in births and abortions can be expected. We find that the introduction of the policy led to a 3% increase in birth rates, due to both a decrease in abortions and an increase in conceptions. The announcement of the cancellation led to a transitory increase in birth rates just before the benefit termination was implemented, driven by a short-term decrease in abortions. The actual cancellation then led to a 6% decline in birth rates. A heterogeneity analysis suggests that the positive fertility effect of the benefit's introduction was driven by high-skilled parents, while the negative impact of the cancellation was larger among low-skilled and out-of-labor-force parents, and in poorer regions and areas that were more affected by the 2008 recession. We also find suggestive evidence that the child benefit had both a timing ("tempo") effect, such that some women had children earlier, and a level ("quantum") effect, where some women had more children than they would have had otherwise.

Methodological issues related to the use of online labour market data: a mapping of biases and techniques to address them

Lucia Mýtna Kureková
Co-autors: Brian Fabo

This study provides a mapping of existing research that employs online labour market data, covering both demand side and supply side. We assess a variety of tools and empirical methods that have been used to address specific disadvantages of this data, in particular non-representativeness or fluctuations in data quantity and structure. We find that while this research field has expanded rapidly, many empirical studies do not engage with the methodological aspects and weaknesses of online labour market data and take them at face value. We highlight that there are legitimate research approaches, which are inductive in nature, focused on discovering patterns and trends in underlying data. These are by definition less concerned with generalizability of findings, as they have different objectives. For this body of research, online labour market data open new avenues for understanding developments in labour markets. Different techniques have been adopted to deal with the non-representativeness problem, such as statistical techniques; adapting the research questions and research focus to the quality of data; and use of mixed methods, including qualitative methods, to increase the robustness of results.

*This work was supported by project no VEGA 2/0079/21 and the International Labour Organisation.

Technology and skill demand: Labor market polarization in European countries

Martin Lábaj
Co-autors: Matej Vitáloš

This paper adds new evidence on labor market polarization in Europe driven by technological change. In particular, it studies the relationship between displacement and reinstatement effects caused by automation and new tasks on the one hand and the demand for skills on the other. The analysis focuses on European countries and its results suggest that technological progress leads to labor market polarization, as the medium-educated workers are the ones left behind. Importantly, automation and new tasks seem to widen the wage gap between high and medium-educated workers rather than leading to relative employment changes. It is also shown that labor market polarization among men has probably a different driver (automation) compared to women (creation of new tasks). We also document the distinct impact of technological change on white-collar workers.

Low wages as a trap in Central Europe ?

Daniel Gerbery
Co-autors: Tomáš Miklošovič

This work provides analyses of the mobility and resilience to mobility among low-wage earner in four Central European (CE) countries: Slovakia, Czech republic, Poland and Hungary. It examines transitions into higher-paid jobs, into unemployment/inactivity, and stability of low-wage status. In addition to standard transition matrices and summary mobility indices, it employs multinomial logit models with the aim to identify individual determinants of low-wage earners' prospects. The findings show that the CE countries do not represent a homogenous group in terms of presence of low wages when the period 2010-2016 is considered. As regards the future prospects, low-wage employees in the countries with higher incidence of low pay are more likely to reproduce their status, as compared to the countries with lower incidence. Upward mobility is more likely among younger, high-educated employees and among those who work in "better" occupations.
This work was supported by projects no.

*This work was supported by projects no. APVV-20-0621 and no. VEGA 2/0150/21.

Climate change impact on macroeconomic and financial stability

Juraj Sipko
Co-autors: Slavomir Vokoun, Daneš Brzica

Climate change is an existential risk for future generations. The latest International Panel on Climate Change (IPCC) emphasized that the average global surface temperature has significantly risen over the period of the last decades. Based on the best optimistic scenario, the average surface temperature will increase by 1.5 Celsius in the next 20 years. This trend will have an unpredictable and unprecedented impact on the real economy as a whole, but in particular, on the macro-financial stability framework. Climate change will have a very negative impact on both monetary and fiscal policies. The expected drought as a result of climate change will lead to increases in prices of agricultural products that will

cause higher inflation. The main goal of central banks' monetary policy is price stability. Therefore, in order to fight inflation, central banks around the globe should increase interest rates which will cause the deacceleration of real economic growth. Unpredictable and intensified climate changes could bring about natural disasters that will have a detrimental impact on public finance. In addition to the macroeconomics risks, there is a potential growing risk in the financial sector, in particular, in the insurance sector. In order to face the negative consequences of climate change, policy-makers are facing the biggest challenges with the most difficult choices in our lifetime.

Use of geothermal energy in context of environmental challenges: barriers and opportunities

Mária Kačírková

The threat of climate change and its negative consequences is currently a very serious and immediate problem. Climate change will continue in the coming decades. Its extent and the scope of its impacts will depend on the effectiveness of the implementation of measures based on global agreements aimed at reducing greenhouse gas emissions, as well as on efforts to introduce appropriate adaptation strategies, policies and restructuring measures limiting the risks arising from current and predicted climate extremes. The aim of the contribution is to highlight the use of geothermal energy in the world and special in Slovakia. Although Slovakia is one of the countries rich in geothermal resources, their use is currently minimal. The paper draws attention to the reality of geothermal energy used in Slovakia, points to the existing barriers that limit its use and to the prospective possibilities of its use in the future. In the restructuring processes, which must necessarily be implemented in connection with environmental challenges, favourable opportunities are created for the cooperation of companies and cities in the use of geothermal energy in the local environment, which is documented by successful examples of good practice.

*This work was supported by project no. VEGA 2/0111/21.

Cities facing environmental challenges: focus on selected SDG 11 criteria and air pollution issues

Daneš Brzica

Urgency and the increasing variety of the environmental challenges are important features that characterize the current situation from the point of the governance of big cities. In this paper, certain views on some challenges are presented. Currently we see underestimating of (1) the importance/scope and (2) the nature of environmental challenges. However, changing approach to both of them is crucial for timely and adequate solutions. In the traditional understanding, challenges need to be solved according to the intensity with which they manifest themselves. Such an approach is not always suitable, because in a complex world, phenomena do not appear linearly. Waiting for a situation where negative breakthroughs in situation appear (e.g., an increase in air pollution) can mean that the situation is difficult to manage or requires higher costs to solve. A brief look at the situation (meeting SDG 11 criteria and situation in pollution of cities/countries) shows that there is no time to wait for action. The position of selected European cities for the SDG 11 (including pollution-related indicators) shows poor performance in coping with some environmental threats especially in the case of Central Europe. The

environmental indicator PM2.5 was selected for the analysis as one of the indicators due to its significant impact on health, especially in big cities. Such PM2.5 pollution contributes to human mortality from respiratory, cardiovascular and other forms of diseases. Effective governance and efforts to address new challenges at the city/country level are needed to improve functioning of these entities and their resilience.

*This work was supported by project no. VEGA 2/0111/21.

Sources of changes in the behavior of actors in reducing the consequences of climate change

Jaroslav Vokoun

The predominant way of production, trade and lifestyle is demanding on energy, space and transport, which puts a strain on the natural environment. Individual actors (stakeholders) as companies, cities, inhabitants, and governments react to internal and external stimuli, which lead to changes aimed at reducing the carbon footprint. Barriers of carbon transformation are in the area of sufficient information, engagement, management of organizations, finance limitations, competitiveness, etc. One of the elements of change is corporate social responsibility. When companies transform to carbon neutrality, they change value chains, which creates a network effect. The regulatory framework respecting national and EU goals for achieving reductions in greenhouse gas emissions aimed at achieving target utilization includes legislation, the emissions trading system, the tax system, support schemes, emissions related to transport, construction, etc. Creating visions of technological, economic and social transformation leading to climate neutrality also takes into account the need for socially fair change. A significant transformation requires adequate methods of financing and distribution of costs with an adequate impact on the price level. Research, development and innovation are an important part in the creation of technologies with low and zero carbon emissions. Strengthening competitiveness in this context should lead to the transformation of sectors that will bring opportunities on a local and global level and an increase in the quality of life. key words: climate change, transformation, corporate social responsibility

*This work was supported by project no. VEGA 2/0111/21.

Integrated regional econometric input-output model of Slovak Republic - comparative analysis

Ivan Lichner
Co-autor: Jakub Zachar

In this work development and main features of integrated regional econometric input-output model of Slovakia are presented. The results of this model are compared with outcomes from version of the model in form of 8 satellite models. The main difference lies in the changed geographic distribution shifted towards east part of Slovakia as result of incorporation of cross-regional spill-overs effects. Further possible developments and amendments are discussed.

*This work was supported by project no. APVV-20-0621.

Price Module: A Phillips Curve as the main building block

Patrik Kupkovič

In current macroeconomic models, the main building block of price modules is the Phillips curve (PC). The main problem with the PC is that it has been flattening, but the literature explained this phenomenon by accounting for other factors in the inflation process. The main goal of this paper is to apply a state-of-the-art PC methodology for Slovakia. Preliminary results show that the PC apparatus is suitable for modeling inflation in Slovakia, but one has to account for several domestic and foreign explanatory variables and trend inflation. Contribution to the literature is the development of a methodology suitable for other countries, e.g., euro area countries - countries without explicit inflation targets.

* This work was supported by project no. APVV-20-0621.

Uncertainty in forecasting GDP components in CEE region in crisis period 2020-2022

Marek Radvanský

In this paper, we examine the impact of two crisis periods on the forecasting of GDP components. After 2000, two crisis shocks - the COVID pandemic and the war in Ukraine - affected the forecasts. We measured the degree of forecast uncertainty and forecast adaptation through a standard deviation of the panel of forecasts in the region based on the monthly publication Eastern Economic Consensus Forecast. Both effects were of a different nature than the 2008 financial crisis. Forecast uncertainty was significantly higher at the start of the pandemic, but the forecast dispersion declined faster than in the case of the financial crisis, despite the overall decline in forecasts. Conversely, the outbreak of the war contributed to a significant revision of forecasts at a lower level of uncertainty, except for the countries directly affected by conflict. In addition, the paper estimates the cumulative loss of GDP of each country due to the above crises. Although these crises were partially intertwined, the analysis presented shows that the pandemic and the war in Ukraine had markedly different effects across countries and time.

Abnormal FDI as a driver of sudden stop episodes

Brian König
Co-autor: Mária Širaňová

In this paper we study role of abnormal FDI as a potential driver of sudden stop episodes during 2009-2019 period in sample of developed and developing countries. Volume of abnormal FDI is derived from unexplained part of country fixed effects in bilateral gravity regression. We construct three measures 'FDI abnormality' that i) approximate role of an economy as financial center or tax haven, ii) calculate contribution of 'FDI abnormality' to total FDI position, iii) adjust value of FDI stock given their exposure towards territories considered as tax havens or financial centers. Using these measures we estimate panel probit model and obtain three important results. We find that economies with comparably higher

share of inward ’abnormal FDI’ were associated with lower incidence of sudden stop episodes; that capital flows linked to tax haven or financial centers territories may increase likelihood of sudden stop in certain instances; and retrenchment episodes driven by behaviour of domestic investors are not sensitive to any measure of 'FDI abnormality'.

From High Capital Flight to Low Domestic Investment? An Empirical Examination from a Meta-Analysis

Menbere Workie
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This study examines the consistency and validity of numerous empirical studies regarding the ramifications of capital flight on domestic investment in various developing, emerging and selected advanced economies and at various time periods. In this study we take previous empirical studies that incorporates heterogenous empirical specifications, time periods, regions, and control variables and conduct a Meta-analysis to estimate the overall effect of capital flight on domestic investment. This is important because previous studies differ from each other not only in the corresponding empirical specifications and time periods or country coverage but also in their approach to estimate the capital flight per se. To the best of our knowledge, this study will be the first attempt to provide an integrated empirical result using Meta-analysis.

Pensions and inflation

András Simonovits

Public pensions have been indexed to prices or wages for decades, therefore, calculating with real variables, at a first approximation, inflation can be neglected. At high and accelerating inflation, however, inflation can be a problem. (i) At the start of the year, it is difficult to forecast the annual inflation, therefore monthly rises can be practical. (ii) When the prices of basic necessities like food and energy rise much faster than the general price level, and their share in total consumption is a decreasing function of income, proportional indexation should be supplemented. (iii) When inflation is accelerating, the real value of initial benefits can diminish by delaying retirement from December 31 to January 1. (iv) If the pension formula is not properly indexed, then the progressivity can rise with the accumulated inflation.

The Slovak National Transfer Accounts

Tomáš Domonkos
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The main intention of this research is to present the Slovak national transfer accounts for the year 2015. By using national transfer accounts data, we calculated the life-cycle deficit and the resources required for financing the consumption of age groups with positive life-cycle deficit. Afterwards we present the calculations of the support ratio and the fiscal support ratio for the period of 2015 till 2060. Finally, we present the calculations of wealth demand and life-cycle wealth. Our results showed that public transfers tend to flow upward to the elderly while private transfers flow downward. Education and health care of the youth is mostly financed by the public sector while other consumption is financed by private sources. The aggregate life-cycle deficit between 2015 and 2060 showed that aging will cause increasing public transfer requirements and aggregate private as well as public transfers of the working age population will decrease. The support ratio will decrease by 0.25 and the fiscal support ratio will decrease by 0.14 between 2015 and 2060. The life-cycle wealth is mostly positive except for the 22-35 age group and the aggregate life cycle wealth is 4.2 years of labor income.

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Foreign workers in Slovakia: a novel dataset from the Social Security registry

Štefan Domonkos

Data on foreign workers in the Slovak labor market have so far been rather scarce. Based on the administrative registry of the Slovak Social Security system, we have been able to construct a novel time series on the number and average labor income of foreigners working in Slovakia. In addition, these data allow us to distinguish between EU nationals and third-country migrants.

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Pension scheme performance as a matter of good design

Ján Šebo
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Pension systems across Europe are designed as multipillar schemes, where defined contribution investment based schemes should play important role of future retirees income stream. Typically, private or quasi-private schemes employ investment funds or of life-insurances. Pension pot at the moment of retirement is therefore fully determined by investment returns the pension vehicles are able to deliver. Understanding the nominal and real returns, inflationary risk and fee policy should be studied to understand the whether the design of pension vehicles is able to provide satisfactory outcomes at the end of saving phase. By comparing the nominal and real returns against the fees and investment risk, we uncover key factor influencing long-term performance of pension vehicles and argue that the

design of pension schemes contributes to the overall performance to a greater portion that the actual market returns.

Public finances in the wake of external shocks

Karol Frank

In recent years, the Slovak economy has experienced substantial shocks from the external environment. The impact of these events (COVID19, Russian aggression against Ukraine, rising prices, disrupted supply chains, etc.) has naturally been reflected in the performance of public finance. The impacts were mainly on the expenditure side of public finances. The external shocks required a massive increase in government spending to support and stimulate the economic sectors affected by the pandemic. The European Structural and Investment Funds, as well as new European Union programmes to support structural reforms in the form of the Recovery and Resilience Plan and other support schemes, were also important instruments to mitigate the fiscal impact.

Price development in Slovakia: from zero to hero

Martin Hudcovský

Inflation in Slovakia saw a gradual increase over the years, tending to converge towards the European Union average. Throughout this period, inflation remained relatively stable but experienced some fluctuations due to external factors such as the COVID-19 pandemic. It has identified some phenomena, such as rising prices of potatoes and pork, among other goods and services. The pandemic caused disruptions in the supply chain, changes in consumer behaviour, and reduced economic activity, making it difficult to accurately capture changes in prices. Several monetary policy measures were implemented to stabilize prices and maintain inflation within its target range

Slovak economy: Crossing the threshold

Karol Morvay

The Slovak economy has been failing for a longer time to overcome the imaginary threshold that separates it from the performance of the top ones. This is because all three fundamental flows of long-term growth sources have narrowed: the flow of capital, labor and productivity. The biggest reserves occurred in productivity. Productivity has become the most significant weakness. The indicators of the creation of new "drivers" of productivity did not significantly improve. The marginal status of policies oriented towards productivity factors is inconsistent with their potential benefit reaching across interest groups.