SLOVAK ECONOMIC ASSOCIATION MEETING IN KOŠICE
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Book of Abstracts

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Session I, Stream A: Monetary and Banking

Peer Effects in Central Banking

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We provide a new explanation for why central banks became transparent over the last two decades. We apply recently developed social interaction panel regression models for the observational data, which allow the identification of peer effects. We use a global sample of central banks and two different transparency indexes, one covering monetary policy and the other covering financial stability. Previous literature has argued that domestic factors, such as macroeconomic stability, were behind the trend toward greater transparency. In contrast, our results indicate that transparency primarily increased because of a favorable global environment and, importantly, because of the peer effects among central bankers. Central bankers thus learned from each other's experiences regarding transparency. To our knowledge, our paper is the first econometric analysis of peer effects among public institutions or in the macroeconomic literature.

Financing Constraints of SMEs in the V4 countries after the Financial Crisis

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We estimate external financing constraints of small and medium-sized enterprises in Slovakia, Czech Republic, Hungary and Poland during the post-financial crisis period. Our contribution to the literature is in re-estimation of a widely-used Kaplan-Zingales (KZ) index of financing constraints on the data of bank-based post-transformation economies of Visegrad group. We construct a modified KZ index which may be used to precisely estimate financing constraints of small-and medium-sized enterprises in the V4 countries. Our dataset consists of yearly observations for the period of 2010-2014 from Amadeus Bureau Van Dijk database. To identify financially constrained firms we employ investment-cash flow sensitivity, and based on this separation we perform a logit model estimation of microeconomic model parameters.

The Basics of the Theory of Endogenous Money

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This paper deals with the basics of the theory of endogenous money. The theory states that money is not a commodity which is injected into the economic system from the outside, but that it is a set of promises that are made and created within the economic system. The most basic question when it comes to economic theory is whether commercial banks are constrained in their lending practice. The theory of endogenous money states that commercial banks do not simply loan pre-existing money of their depositors to debtors. They create new money in the lending process – although in the paper we will argue, that the term "money" is highly misleading as in a modern monetary economy there are many different entities with different functions, which are called money. The theory of endogenous money comes from the heterodox post-keynesian school of economic thought. However, the paper does not presuppose any prior knowledge of the post-keynesian school. The aim of this paper is to proof that the theory of endogenous money is a better approximation of the monetary system we live in. We use insight from heterodox economists such as Basil Moore and Hyman Minsky, but also insights provided by key institutions such as the Bank of England and the Bank for International Settlement. The paper starts with an introduction to the topic. Then we compare two opposing theories of money – the endogenous and exogenous money view. Next we lay down a framework of basic financial accounting to trace and explain some of the most fundamental monetary operations in a modern monetary economy. We use a very stylized and simplified version of financial accounting. We feel that this is justified given that we try to include every factor that is essential for any given monetary operation and also given

that institution such as the Bank of England use the same simplified version of financial accounting when trying to explain how money works. We use this framework to enter into the debate about whether reserves are an effective constraint on bank lending. We define four different types of constrains – ex-ante, ex-post, hard and soft constrains. We argue that reserves are only a soft ex-post constraint on bank lending and not a hard ex-ante constraint as the money multiplier model of banking implies. Given that reserves are only a soft ex-post constraint we conclude that therefore they can be abstracted from when building models of the macro economy. In the last part of the paper we derive some important, and for orthodox economists highly non-intuitive implications of the theory of endogenous money for economic theory as such. The implications of the theory of endogenous money for economic theory as such are that bank lending does by definition increase the stock of money in the economy and most of the time the flow of money in the economy as well. That means that net bank lending increases aggregate demand and net repayment of loans decreases aggregate demand. Also for a monetary economy it is not the case that all savings precede and determine investments, rather it is the case that some investments precede and determine savings. The paper concludes with a proof that money neutrality is never true – not in the short run and not in the long run as well.

Forecasting mortgages: Internet search data as a proxy for mortgage credit demand

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This paper examines the usefulness of Google Trends data for forecasting mortgage lending in the Czech Republic. While the official monthly statistics on mortgage lending come with a publication lag of one month, the data on how often people search for mortgage-related terms on the internet are available without any lag on a weekly basis. Growth in searches for mortgages and growth in mortgages actually provided are strongly correlated. The lag between these two growth rates is two months. Evaluation of out-of-sample forecasts shows that internet search data improve mortgage lending predictions significantly. In addition to forecasting performance evaluation, an experimental indicator of restrictively tight mortgage credit standards and conditions is proposed. While nowadays many countries run bank lending surveys to monitor the tightness of bank lending standards and conditions, the proposed indicator could be useful in countries without such a survey.

In their seminal paper, Choi and Varian (2009a) show how Google Trends data improve near-term forecasts of several economic indicators, including retail sales, car sales, home sales and travel destinations. Other papers followed, showing how unemployment, private consumption and house prices can be forecasted using internet search indices. The official statistics on mortgage lending are published monthly and come typically with a lag of several weeks. In contrast, Google Trends data on the search volumes of queries that users enter into Google are available on a weekly basis without any lag. This paper explores to what extent the Google Trends data can be helpful in predicting mortgage growth.

Two time series are used for the analyses in this paper – the nominal volume of new mortgages provided to households by banks in the Czech Republic, and Google Trends data on the search volumes of mortgage-related Czech words with and without diacritics searched for from computers in the Czech Republic.

The statistics on newly provided mortgages are available on a monthly basis and are published by the Czech National Bank one month after the end of the month to which they apply. Data on search volumes of specific terms are available from www.google.com/trends as an index. These data are available on a weekly basis without any publication lag.

To see whether the lag structure changes over time, rolling window correlations between the smoothed growth rates of mortgages and searches are calculated for lags 0 to 4. The correlation is strongest for the two-month lag over the whole sample period, but the correlation at the three-month lag gets equally high towards the end of the sample.

The usefulness of search growth data in forecasting mortgage lending is assessed in an out-of-sample forecasting exercise. The baseline forecast of mortgage growth is compared with the forecast exploiting the data on search growth lagged by two months. The window used for the estimation of the equations' coefficients extends from 2007m1–2008m8 to 2007m1–2014m9. The one-month and two-months-ahead forecasts constructed using the estimated coefficients are then compared with the actually observed values and the forecast errors are calculated. Inclusion of lagged search growth reduces the MAE and RMSE of the one-step-ahead mortgage forecasts by approximately 18% and 23% respectively. A similar improvement is observed with the two-steps-ahead forecasts. In both cases, the Diebold–Mariano test strongly rejects the null hypothesis that the forecast accuracy of the models with and without lagged searches is the same.

Finally, mortgage growth lagged by 12 months is added to the regressions so that all seasonal effects can be captured by this term. Most of the variation in mortgage growth is now explained by seasonality. Nevertheless, lagged search growth still improves the fit. The results of the out-of-sample forecasting exercise with a seasonal term are following. The inclusion of lagged search growth reduces the MAE and RMSE of the one-step-ahead mortgage forecasts by approximately 8% and 10% respectively. The reductions in the forecast error for the two-steps-ahead forecasts are approximately 7% and 10% respectively.

In the second part of the paper, demand for mortgages is compared with mortgages actually provided and an experimental indicator of restrictively tight bank lending standards and conditions is constructed. In this part, it is assumed that the willingness of banks to provide mortgages changes over time and in some periods fewer mortgages are provided not due to lower demand, but because of restricted supply. While nowadays many countries run bank lending surveys to monitor the tightness of bank lending standards and conditions, the proposed indicator could be useful in countries without such a survey.

The idea behind the indicator is straightforward. The smoothed growth rate of mortgages actually provided is regressed on the smoothed growth rate of searches lagged by two months. The residuals from this regression represent the part of the variation in mortgages that cannot be explained by the variation in demand for mortgages. Growth of demand substantially above the growth of mortgages actually provided can signal a lower willingness of banks to provide mortgages. The experimental indicator for the Czech Republic leaves the two-standard-deviation band around the mean of the indicator only in the third quarter of 2008.

What happened with credit standards and conditions in this period (which saw the outbreak of the financial crisis)? The bank lending survey did not yet exist in the Czech Republic in 2008, but it is possible to check the bank lending survey for the Eurozone. The net tightening of credit standards applied to loans to households for house purchase reached 36% in the Eurozone in the third quarter of 2008. This is the second-highest number in the history of the Eurozone bank lending survey. The period identified using the suggested experimental indicator thus very likely coincides with the period of most significant tightening of credit standards and conditions during the period analysed.

Inflation persistence around the world

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In this paper we provide a comprehensive analysis of the link between price-stability oriented monetary strategies and inflation persistence. We analyze a dynamics of inflation persistence in a sample of 68 countries around the world by employing quarterly inflation rates for a period from 1993:Q1 to 2013:Q4. The dataset contains both developed countries and those falling into category of emerging markets (according to the Dow Jones list). This exceptionally wide coverage enables us to provide a truly "big picture" on the analyzed phenomenon.

In the first stage we use the time-varying coefficients approach to derive four different measures of inflation persistence for each individual country in our sizeable data set. The time-varying persistence approach helps us to account for structural breaks in persistence that do exist in majority of countries in our sample. In the second stage we estimate links between inflation persistence and two policy strategies that possess potential to affect inflation persistence. The strategies are inflation targeting and constraining exchange rate arrangement. We distinguish between implicit and explicit inflation targeting strategies of central banks, and also identify constraining exchange rate arrangements with respect to the US dollar and euro (or Deutsche mark).

Based on our results we show contributing effect of inflation targeting with respect to inflation persistence. Effect of explicit IT is stronger than that of the implicit targeting. However, even the less strict version (IIT) possesses the power to tame the persistence. The link between inflation persistence and constraining exchange rate regimes is, in general, less pronounced than that of IT. Further, regimes with US dollar, as a reserve currency, are less effective than those using euro (or Deutsche mark). Hence, our evidence shows that effect of the exchange rate arrangement on inflation persistence is reserve currency dependent and correlates with the level of inflation persistence in the country of reserve currency.

Our results are robust to differences in four inflation persistence measures; these represent well established and suitable measure used in the literature. The results are also derived by a methodology that effectively accounts for existing structural breaks in inflation persistence series as well as for endogeneity of the policy strategies with respect to persistence itself. Our findings then convey a strong message that price-stability oriented policy strategies possess ability to help in reducing inflation persistence. This is positive policy implication because monetary history shows that deflation periods are less frequent than those when inflation and its persistence represent pressing and challenging issue.

Session I, Stream B: Macro and growth

The impact of mineral resources on economic development in Sub-Saharan Africa

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The paradoxical effect of natural resources and especially non-renewable minerals on economic performance has been the topic of several studies throughout the years. The aim of this paper is to identify the impact of non-renewable resources on the development of economic and social indicators in the region of Sub-Saharan Africa. This region comprised of 48 countries is the most underdeveloped one in the world despite vast reserves of non-renewable resources (oil, natural gas, gold, diamonds). In our dissertation we are planning to approve or refute the hypothesis that mineral resources have negative effect on development in Sub-Saharan Africa. Based on the literature review on the topic we decided to focus only on non-renewable resources because of their unique characteristics in comparison to other types of resources. The shift from studying the effects of the whole primary sector towards the study of non-renewable resources only can be seen in journals in recent years. The article summarizes the evolution of this topic in economic literature, ranging from Dutch disease, through resource curse to modern research of resources´ impact on education or health indicators. For our research we used UNCTAD database to obtain data on the share of mineral resources in total exports, because it offers detailed data on exports divided according to SITC Rev. 3. Other commonly used sources offer data on primary sector exports or fossil fuels exports and thus do not serve the needs of this research. We had to sum up all the categories of mineral resources to cover wide range of export commodities of Sub-Saharan Africa. To study the impact of mineral resources in the economies of Sub-Saharan Africa we used regression analysis. In the first part of the article we determine the relationship between the share of mineral resources in total export and economic growth in the economies of Sub-Saharan Africa. Many of these economies are rich in minerals and at the same time one of the poorest. Existing studies show a negative effect of mineral resources on economic growth. In the second part of our analysis we examined the impact of mineral resources on Human Development Index - HDI, because it combines economic and social indicators and thus is more complex in describing standard of living than income or product indices. We consider the study of minerals´ impact on other than economic indicators as important step to explain poor economic performance in Sub-Saharan Africa. We examine the impact of mineral resources on Human Development Index using regression analysis.

Both regression analysis models described are controlled for other variables identified in literature research as influential factors in resource rich countries. Among others, these factors are political situation, income equality, types of resources. Specific additional factors are controlled for in first or second model. Both regression analysis models are performed on the sample of all economies of Sub-Saharan Africa. Then we perform the analysis separately on two groups of countries divided to resource-rich and other countries. The threshold for determining the economies dependent on exports of mineral resources was set as at least 40% share of mineral resources in total export. This designation is widely used in scientific studies to distinguish economies dependent on mineral resources. Based on the results of our research we can propose and recommend suitable economic policy for underdeveloped resource-rich countries in Sub-Saharan Africa and test the recommended policy of diversification.

Business cycle synchronization of the Visegrad Four and the European Union

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One of the most challenging phenomena in economics is the identification, proper understanding, and disentangling of factors and mechanisms influencing dynamics of macroeconomic variables. Number of quantitative econometric techniques were developed to study regularities in fluctuations of macroeconomic indicators and business cycles. This article investigates the business cycle synchronization at different time horizons. In order to disentangle desired information, we apply the wavelet methodology working in time-frequency space. The analysis considers the case of the Visegrad Four, its inside relationships and those within the framework of the European Union (EU).

It has been more than two decades since the break-up of the Eastern block, when the countries began their independent economic and political journey. The Czech Republic, Hungary, Poland, and Slovakia started discussing the mutual cooperation during their economic transformations. Despite their originally different economic maturities and development, their willingness and regional proximity guided them to establish the Visegrad Four in 1991. One of the aims of the group was to help its member states to organize their institutions for faster convergence and integration with the European Union. In 2004, these four countries became members of the EU. This obliges them to adopt the Euro currency within the integration process. One of the concerns of a successful integration into the European monetary union (EMU) is the business cycle synchronization, which is motivated by the theory of Optimum Currency Area (OCA) (Mundell, 1961). A country joining the OCA gives up its individual monetary policy and in terms of cost and benefit this requests some level of integration of macroeconomic variable and policies (De Haan et al., 2008). The common currency can be beneficial for both new and former countries in terms of trade transaction costs. Otherwise, at the European level, for instance, the European Central Bank rules policies applicable in all countries, which may be counter-cyclical for countries with low business cycle synchronization (Kolasa, 2013). This may create difficulties for those countries. On the other hand, low synchronized countries may benefit from being members of the OCA because the business cycle synchronization appears as an endogenous criterion. This endogeneity of OCA means that forming a monetary union will make its members more synchronized (Frankel & Rose, 1998).

To assess the degree of similarity or synchronization, researchers have searched for appropriate tools to capture the information. One of the most popular tools is the Pearson correlation coefficient, which simply measures the degree of co-movement in time domain. However, market-based economies are dynamic systems structured at different time horizons. For this reason, researchers started surveying the behaviour of such systems at different frequencies corresponding to different time horizons and the interest in frequency domain measures has naturally been growing. Christiano & Fitzgerald (2003) proposed a model known as the Band pass filter allowing for filtering a desired frequencies of time series. Further, Croux et al. (2001) presented a measure of co-movement, the dynamic correlation, based on the spectral analysis, which equals to basic correlation on band pass filtered time series. Nevertheless, both the time (static) Pearson correlation or the spectral domain dynamic correlation have similar caveats. The first loses the information about frequency horizons and the latter omits the co-movement dependence in time. The wavelet analysis overcomes those limitations due to its operation in both time and frequency domains (Torrence & Compo, 1998). During past two decades, the wavelet applications have been supported by its another advantage, which is the localization of the wavelet basis function in time and its bounded support, and hence the analysis is free from the assumption of covariance-stationarity, from which many filtering methods suffer (Raihan et al., 2005). Literature presents many studies that successfully used the wavelets, which do not necessitate stationary time series, e.g., Aguiar-Conraria et al. (2008) analysing the evolution of monetary policy in the US, Vacha & Barunik (2012) studying energy markets relationships, or Yogo (2008) using the wavelet analysis to determine peaks and troughs of business cycles.

To capture the co-movement of two or more time series, we use several wavelet measures that overcome the above mentioned caveats and obtain desired information about time series relationships. For the bivariate analysis, we employ the wavelet coherence described in Torrence & Compo (1998) and Grinsted et al. (2004). Further, while studying the multiple relationship of several time series, we start with the bivariate measure proposed by Rua (2010). Similarly as Croux et al. (2001) transformed the dynamic correlation to the multivariate measure of cohesion, Rua & Silva Lopes (2012) extend the wavelet quantity of Rua (2010) to the multivariate case of weighted cohesion. The multivariate case relies on the bivariate measure multiplied by fixed weights that rep- resent a share of each pair's value among all time series. However, in order to reflect the dynamics and development of economies, we believe that weights may be changing over time and should not be rigid. Taking that into account, we propose to redefine the weights in the cohesion measure to have the time-varying structure. For example, emerging or developing countries expose higher growth and may get closer to developed countries, hence, the ratio of each pair changes over time with their evolution.

The contribution of this paper is twofold: we propose the novel measure of cohesion with time-varying weights and we have done the empirical analysis concerning the Visegrad Four. Using the state of art wavelet methods, we find different levels of co-movement between Visegrad countries and EU during the period 1990-2014. The Visegrad countries show strong co-movement at the long-term business cycles. The pair-wise synchronization of Visegrad countries with Germany appears to be significant for long-term business cycles from 2000 onward. The measure of multivariate co-movement confirms that the Visegrad countries are well-synchronized at the business cycles periods of 2-4 years. Similarly for the 16 European countries, we observe their higher cohesion for those periods, which becomes stronger after 2000. All countries together promote no considerable relationship for periods up to 1 year, this may reflect some short-term policy heterogeneity.

Weights in Multidimensional Poverty Indices

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It is often argued that the nature of poverty is multidimensional and hence, focusing on a single indicator (usually income or consumption) leads to a narrow-sided perspective. Once the multidimensional nature of poverty is accepted, relative weights of the dimensions play a crucial role in determining the prevalence and characteristics of the poor. There exists a vast literature on the different approaches to set weights, but none of the approaches is generally accepted, and hence the arbitrary "equal weights approach" is the most commonly used in the empirical applications. The arbitrary equal weighting of all dimensions is often defended by its simplicity, and at the same time equal weighting is universally considered to be wrong. Only a very limited attention has been given to a comprehensive assessment of robustness of multidimensional poverty measure to weights.

Our approach is based on a statistical testing of a set of necessary (but not sufficient) conditions, which ensure second-order dominance for every conceivable weighting vector. Furthermore, we identify the relationship between multidimensional poverty threshold and set of dimensions weights which preserves the initial ranks of countries.

In our study we assess the robustness of the indicator "people at risk of poverty or social exclusion", which is one of the Europe 2020 headline indicators created by Eurostat in order to monitor progress towards the Europe 2020 strategy targets. The indicator is defined as a simple composite index, and in terms of counting poverty measures family it has a form of a multidimensional poverty headcount ratio. The calculations in this paper are based on European Union Statistics on Income and Living Conditions (EU-SILC) 2008-2012 microdata, covering 28 EU countries and three EFTA countries.

According to our preliminary results, in approximately 70 per cent of all pair-wise country comparisons, it is always possible to find a set of weights for which ranks of countries reverse. Similar results are obtained, when assessing the robustness of poverty comparisons over time, which suggests that evaluations of the progress made in alleviating multidimensional poverty are highly sensitive to the set of weights used to quantify poverty.

Trade integration of central and eastern European countries into the EU through lenses of global value chains

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The traditional view of international trade, according to which the country where a good is exported from is also the country where it is 'made in', and, conversely, the country that imports a good is at the same time its final user, does not adequately reflect the realities of present-day production processes. A more accurate representation of international trade needs to take account of the fact that products undergo several value-enhancing intermediate stages of transformation and combination with other inputs prior to becoming final. When these successive stages of production are separated by national borders, production processes ("value chains") acquire a regional (or even "global"), trade-creating, dimension. Borders may indeed be crossed multiple times during such a process and final goods and services can consequently be thought of as bundles of components with different national origins. Using the information provided by world input-output tables (WIOT), the value embedded in these final goods and services can be disentangled and traced back to its geographic and sectorial origin.

Countries from central and eastern Europe, which joined the European Union in May 2004 and later (EU CEEs) constitute a natural case study for global value chain (GVC) analysis. Majority of these countries are small and open economies sharing common borders with the euro area countries, which in turn constitute also their main trading partners.

This paper investigates the evolution of the production sharing processes between EU CEEs and the euro area countries. This production sharing had been developing since the start of the transition process in EU CEEs, intensified around their EU entry and took a pause when Europe was hit by the global financial and economic crisis and the euro area sovereign debt crisis. Alongside a gradual economic recovery in the euro area observed in a recent past, development of value chains within Europe is expected to resume.

More specifically, this paper examines which euro area countries are most active as originators of GVC involving EU CEEs and tries to detect and specify factors supporting development of production sharing between two regions. By reproducing the analysis by Baldwin and Taglioni (2011) on "factory Asia" for EU CEEs, this paper investigates whether the qualitative nature of production sharing between the euro area countries and EU CEEs has changed over time, which in turn has implications for economic policies.

Preliminary results suggest that EU CEEs countries participate in value chains originated by the euro area countries to a varying degree, with the Czech Republic, Hungary and Slovakia being the most integrated countries from the region. The production sharing is concentrated into a couple of sectors, with automotive industry playing a dominant role. We also found that several EU CEEs originate their own supply chains, which indicates that the position of EU CEEs is moving up the technological ladder.

Special session I – History of Economic Thought

Economization of Social Scientific Expertise: Czechoslovak Prognostika and Governmental Rationality of Late Socialism

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This paper looks at the history of prognostika since the late 1960s to 1980s. I will discuss how this particular field of forecasting expertise was increasingly influenced by various concepts of economic thought and how the knowledge produced by prognostika scholars was conceptualized and used in the late socialist governance. This paper will show that this development was a part of much broader transnational process of social knowledge economization in the 1970s and 1980s and had its impact on the governmental rationality of late socialist and post-socialist state.

Late Communist Social Management Disciplines: The Case of Socialist Jurisprudence

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This paper discusses the importance of law and legal theory for social management under the late state-socialism. The law played a crucial role in late socialist techniques of governance and its importance was increasingly emphasized by both authorities and legal experts since the 1960s. The aim of this paper is to analyze what role was played by law and legal theory in the management and regulation of economic processes in late socialism.

Intellectual Roots of Czechoslovak Privatisation

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The privatisation process of the early 1990s in Czechoslovakia/Czech Republic is often interpreted as an application of the Washington consensus. This paper will instead focus on local intellectual roots of this key transformative policy. Besides economic thought of the so called "grey zone" economists, it will look at other less self-evident neo-liberal inspirations, i.e. philosophical, moral and religious ideas of Prague post-dissident intellectual environment.

Session II, Stream A: Economics

The economic assesment of big events in the local economy

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Big events have not only cultural and social benefits, but also an indisputable economic impact on the hosting city. These events represent an opportunity to not only attract visitors from outside the region but also for them to spend money on accommodation, food, transport etc. Visitors' expenditure presents additional income for the local economy and stimulates a considerable amount of economic activity and growth. The assessment of the economic impact of events has become popular of late and combines the economic approach with spatial marketing and tourism studies. A coherent methodology has also been developed to evaluate the economic impact of events in the geographical area.

This paper aims to estimate the local economic impact of the biggest cultural and sports events organised in Košice, the World Championship in Ice Hockey in 2011 and White Night festival. This impact empirical study was done in three stages. Firstly, the measurement of attendees using appropriate methods for ungated events. Secondly, the estimation of the visitors' impact related to private spending generated by the event´s visitors and thirdly, through estimating the overall economic impact by calculating the multiplying effects on the local economy (induced impacts).

How Progressive Are Indirect Tax Reforms? Household-Level Estimates from Slovakia

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Introduction

The current policy consensus in developed countries suggests that shifting away from income taxes towards indirect taxes makes the tax system more incentive compatible (e.g. Decoster et al. 2010). As income taxes in developed countries are typically progressive, estimating the distributional impact of indirect tax reforms is an important question for economic policy. The empirical findings on the progressivity of indirect tax systems are however mixed. For example, Wagstaff et al. (1999) conclude that indirect taxes are in general regressive in most OECD countries, as the average tax rate decreases with total expenditures or living standards. On the contrary, Decoster (2005) finds that the Russian indirect tax system is progressive overall, which is mainly due to the tax burden on car fuel and alcohol consumption.

The disagreement in the above results probably comes from differentiated tax schemes by types of consumer goods and changing budget shares of these goods as household income rises. We contribute to the above debate by estimating a household demand system for a few general types of consumer goods using Slovak household-level data. This allows us to simulate the consumption responses to exogenous changes in prices, such as those implied by indirect tax reforms. To the best of our knowledge, these behavioral responses of consumption have not been considered when estimating the distributional implications of indirect tax reforms.

Model

The most recent applications of demand models typically follow the Quadratic Almost Ideal Demand System (QUAIDS) developed by Banks et al. (1997), which we follow in our study. In QUAIDS, the expenditure share of a consumption bundle is a quadratic function of the logarithm of total household expenditures (proxy for income). This functional form is consistent with empirical observations and it basically allows a good to change from inferior to superior (or vice versa) as income rises.

Data

We apply the data from the Slovak Household Budget Survey (HBS) covering the period from 2006 to 2012. Each of the annual representative samples contains 4500 to 6000 households. However, the samples do not form a genuine panel as surveyed households are randomly selected from the population each year. The main purpose of the survey is to collect information on the allocation of household expenditure and sources of incomes as well as individual specific information of the household members.

For the purpose of our analysis we aggregated the detailed consumption categories into the following bundles: i) Food and non-alcoholic beverages, ii) Clothing and Furniture, iii) Housing and Healthcare, iv) Alcohol and tobacco, Transportation, Telecommunications, Education, Culture and recreation, Hotels, cafes and restaurants and v) Miscellaneous goods. Our classification reflects mainly the similarity of goods from a consumer's point of view. Following Banks et al. (1997), we also considered the similarity of Engel curve shapes of the particular goods while aggregating them to broader bundles.

Since prices are not collected within the Household Budget Survey, we have merged the HBS dataset with three-digit COICOP price indices covering time period 2006 - 2012 obtained from the Eurostat database. To increase the time variation in prices we have considered quarterly prices, which resulted in observing a total of 28 price points over time. Moreover, in order to obtain cross-sectional variation we have computed weighted price indices of the five aggregated bundles from disaggregated categories for each household using expenditure shares as weights.

Estimation and Results

We have estimated a QAIDS for five aggregated bundles augmented with demographic controls on the pooled cross-sectional data covering the period 2006 – 2012 by a non-linear seemingly unrelated regression (SUR) suggested by Poi (2008 and 2012). Demographic variables are incorporated to demand system using the scaling approach which was first proposed by Ray (1983) and later implemented to QUAIDS by Poi (2012). Following other studies, we consider a set of demographic variables influencing expenditure patterns such as household size, age, gender, employment status and education of the household's head, dummy for urban area and the capital city as well as seasonal dummies and a time trend.

Our results from the QUAIDS model indicate that Slovak households perceive bundles such as Food and nonalcoholic beverages or Housing and Healthcare as necessities as their average budget elasticities are smaller than one. On the other hand, the remaining three bundles are perceived as luxuries. The estimated own-price elasticities indicate that demand is price elastic for bundles like Clothing and Furniture, Housing and Healthcare, and Miscellaneous goods. A further look at the estimated elasticities reveals that low income households are much more responsive to price and income changes compared to high income ones. There exists further heterogeneity in responsiveness among different social groups as well.

The Progressivity of Simulated Indirect Tax Reforms

To assess the progressivity of potential VAT reforms in Slovakia, we simulate exogenous 1% price shocks resulting from a changed VAT rate for each of the five commodity bundles. Using the estimated budget share equations and elasticities from the QUAIDS, we compute the impacts on consumer welfare for each household and shock. The welfare impact is measured as the so-called compensating variation introduced by Hicks (1939). This is equal to the income effect of the VAT shock to prices, as known from the Slutsky equation. To measure the progressivity of simulated VAT reforms, we compute the Kakwani index of the welfare impacts with respect to total expenditures. In line with our expectations, our preliminary results suggest that the simulated VAT reforms are regressive for two bundles, namely Food and non-alcoholic beverages and Housing and healthcare, and are progressive for the remaining three bundles. Unlike other studies in the literature, our estimates of progressivity take into account the behavioral responses of households to price changes due to tax reforms.

Export diversification and output volatility: comparative firm-level evidence

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The literature shows that openness to trade improves long-term growth but equally that it may increase exposure to high volatility. In this vein, our paper investigates whether diversification at the firm level lowers the output volatility of the firms.

While macro level studies are more abundant, empirical evidence on exporting and volatility at the firm level is scarce and inconclusive. In this paper we study the relationship between export diversification and output volatility at the firm level using comparative micro-data from five countries. Our contribution to the literature is threefold. First, unlike the previous studies we address the endogeneity of diversification in the volatility equation. Second, we apply an identical methodology to large representative firm-level databases from five countries. Data for manufacturing firms from Estonia, Hungary, Romania, Slovakia and Slovenia have been used. These five countries form a good case study because they have all experienced fast growth and high volatility, but they have different diversification patterns. Third, we test whether the effect of diversification on volatility has changed over the business cycle. The time period analysed covers the last business cycle of 2004-2012 for most of the sample countries. There are rich dynamics in firm sales during this time, making it possible to study the effect of diversification on volatility over the boom and bust period.

The empirical specification is motivated by a simple model where firms maximize profits given their diversification pattern. It is shown that the relationship between diversification of markets and volatility can be positive or negative, dependent on the volatility of markets served by the firm and the covariance between shocks in the markets.

This paper uses firm-level balance sheet, profit/loss statement and customs data. The balance sheet and profit/loss statement data were cleaned of outliers using an identical approach across countries. The datasets originate from the joint cross-country microdata project of European Central Bank Competitiveness Research Network. In addition to variables covered by the project, our customs data enable us to disentangle yearly trade flows to a very detailed level, distinguishing between flows related to products at the 6-digit HS (Harmonised System by World Customs Organization) level and also between destination markets. The paper focuses on the export volumes of manufacturing firms.

The output volatility is measured as the standard deviation of the firm-level real sales growth rate over a period of four years. The choice of four years is chosen as a trade-off between more information about volatility captured by a longer time span and a larger number of firms covered by a shorter time span. The diversification measure is calculated by the Herfindahl index for firm-level export flows in two categories of products at 6-digit HS and destination markets. The Herfindahl index is calculated as the sum of squared market shares in the two categories; the index varies between 0 and 1, and has larger values for more concentrated exports and lower values for more diversified exports. The main advantage of our database is that unlike previous studies we also cover small firms and use data that cover the whole population of firms or a large representative sample of the whole population of firms.

We address the endogeneity issue by introducing a specification that is strict in the chronological sequence of the diversification and volatility decision, and by applying the instrumental variable technique. The volatility in the period between time t+1 and time t+4 is dependent on the diversification decision in time t so that the unobserved productivity shock from the same period cannot affect both diversification and volatility. As the diversification decision in time t can still depend on the expected volatility, the diversification is instrumented by firm characteristics related to the potential for internationalisation.

Our empirical results confirm that export diversification has a strong negative effect on firm-level output volatility, i.e. exporting more products or serving more markets leads to higher stability for firm sales. Firms with higher diversification by one standard deviation have lower volatility of one fifth to four fifth of a standard deviation. Unlike the study by Vannoorenberghe et al. (2014) we find export diversification and volatility to be negatively related for the majority of countries and subgroups in the sample. The diversification effects are the strongest in Romania and the weakest in Hungary. There is also evidence that the diversification of products has a stronger effect on volatility than the diversification of destination markets does and that the diversification effect is weaker for larger firms. Our results are robust to the different sets of instruments applied.

We also find that the negative effect of diversification on volatility decreased during the Great Recession. This result is likely to be related to the common negative shock present across all the destination markets during the Great Recession, when the covariance of shocks increased and the effect of the diversification component on volatility weakened.

Session II, Stream B: History of economic thought

Hayek's Conjectural History Method

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Hayek's conjectural history method has not been systematically inquired. This is the result of the inappropriate adoption of Hayek's late writings, especially his shorter pieces after the Law, Legislation and Liberty and before the Fatal Conceit. We collected most of these articles and the paper is based on them. Most important of previous interpretations of the method is the attitude that it can be applied primarily in the sectoral analysis, especially in free banking theory, with properties of being counterfactual, future-oriented and reform-driven. We compare this interpretation with Hayek's use of the method. Hayek used it more broadly as a method for inquiry for the origin of any complex spontaneous order. Paper newly presents that Hayek used conjectural history in the many diverse fields, both general and sectoral: evolution of constitutions, evolution of the currency competition, emergence of the morals of the extended society thanks to the group selection of religions and the emergence of the market exchange after the Neolithic revolution. We then incorporate conjectural history into the body of Hayek's thought. Method is needed, where in the genesis of a complex order we face the knowledge problem. This is quite unlike how the situation was of Hayek's previous method, the compositive method. Knowledge was treated there as given. Whenever we are not given all the data needed to reconstruct mentally the emergence of the order, this method enables us to develop a theory of how the particular spontaneous order could develop, given the scarce and occasional data that we have. Along the way of developing such theory we grasp the function a certain spontaneous order serves in society. Only on the basis of this understanding of function we are entitled to formulate an immanent criticism of the particular spontaneous order. If from such immanent criticism it follows that at this time that spontaneous order doesn't serve the function properly, we will suggest reform of that spontaneous order in a more adapted way. Such a suggestion for reform will then not fall victim of constructivist rationalism. When compared to prevalent interpretation of the use of method, ours is more general and opens new fields of inquiry for the Hayekian analysis.

Networks of Chicago Economists

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The Chicago school of economics has received much attention from historians of economics. Yet most historical treatments have focused on the most prominent members of this influential scholarly community such as Frank Knight, Milton Friedman, Gary Becker, and George Lucas. My paper adopts an approach to history of economics that focuses on the role of the networks within which economists operate, their ideas diffuse, and gain scientific credit and requires the consideration of the entire community including its lesser known members. For these purposes I use a database of all economists who received a doctoral degree from University of Chicago's Economics Department that is reconstructed from the departmental records. The database covers the period from 1894 when the first doctoral degree was conferred until 2013. While the data on advisors is missing well into the 1930s, for the subsequent period encompassing around 95% of all 1600 Chicago economics PhDs is available. This allows me to reconstruct the network of Chicago graduates and their advisors, an academic family tree so to speak. It reveals a small circle of advisers has emerged who have supervised a disproportionally large portion of students, such supervisors very likely graduated from Chicago itself. My paper also furnishes evidence of how Chicago rose to prominence as documented by the numerous ties of Nobel Laureates, Clark Medalists, elected officials of the AEA or the Council of Economic Advisors to the Chicago network. Comparison to MIT and Harvard economics departments reveals similar instances of high concentration and self-replication.

Was Domar Right? The Second Serfdom, the Land-Labour Ratio, and Urbanization in Eighteenth-Century Bohemia

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The second serfdom is widely regarded as one of the sources of the early modern 'Little Divergence', during which the economies of eastern and eastern-central Europe are thought to have decisively fallen behind those of the west. But what caused the second serfdom? One influential explanation is Domar's hypothesis that high land-labour ratios encouraged the intensification of landlord coercion over peasants. The other, based on Brenner's arguments and recently formalized by Acemoglu and Wolitzky, questions Domar's hypothesis and postulates that the availability of outside options to peasants can either countervail or deepens landlord coercion caused by labour scarcity. We investigate both propositions by compiling a detailed data

set of some 11,000 villages and about 500 towns in 1754, covering the entire country of Bohemia (the Czech lands). We calculate a unique quantitative measure of the second serfdom - the number of days per week serfs were obliged to provide forced labour for their landlords - and measure peasants' outside option by the density of urban sector. Using detailed, village-level information, we investigate the relationship between the land-labour ratio, level of urbanization, and the quantitative intensity of the second serfdom across early modern Bohemia. We find that the intensity of the second serfdom was indeed linked to land-labour ratios, but also showed significant and non-trivial relationship with urban sector. Specifically, we find that labour coercion is intensified by the towns which are subjected to landlord's jurisdiction while it is reduced by the towns which are free of landlord's jurisdiction. Our findings are robust to numerous estimation strategies which account for village, estate, and region characteristics. Our quantitative analysis of an entire eastern-central European economy under the second serfdom sheds light not only on the Domar hypothesis, but also on the wider sources of economic divergence between eastern and western Europe.

Special session II – Experimenting with the Commons: Lab Session

Experimenting with the Commons: Lab Session

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Behavioural approaches aim to determine and model empirically how individuals and groups make choices. They attempt to examine how incentives and institutions affect decisions. The significance of game theory in social sciences has also been recognised by being awarded Nobel Prize for Economics in 1994, 2005 and 2009. The importance of behavioural approaches is dramatically increasing in the present complex and globalised world as they are capable of addressing issues under the uncertainty and multiple agent arenas of choice facing conflicts of interests (Mc Ginnis et al. 2000). Studies of typical problems of social dilemmas associated with public goods and common pool resources can find direct application in resource and environmental governance (Ostrom, Gardner and Walker 1994). The compelling reason for the application of the experimental approach to environmental and natural resource problems is the interdependence of agents, their actions and strategies (Dinar et al. 2008).

The main objective of innovative session is to demonstrate if and how behavioural approaches based on experimental techniques could substantially contribute to the governance and the design of effective natural resource management strategies under the given complexity. In particular, the discussion aims to concentrate on social or other regarding preferences (Gintis 2008), i.e., agents that care not only about their own pay-offs but collective interests and processes. These preferences are more typical for natural resources characterised as common pool resources and for which cooperation is seen as a more successful strategy than competition. Common pool resource experiments in the laboratory and the field have provided insights that have contrasted conventional non-cooperative game theory. Contrary to predictions from non-cooperative game theory, participants use costly punishment and something as simple as face-to-face communication increased average earnings significantly. Role board games are interactive agent-based models that allow participants from the most contrasting social backgrounds to understand the challenges and opportunities of decision making processes at different scales and multiple actors and interests.

Session will provide platform for pilot testing of common pool resource experiment and role board game. Both are designed jointly by CETIP Network and Laboratory of Experimental Social Sciences at the CE SPECTRA. The experiment will be conducted as simple 'pencil and paper design' lab experiments and green energy role board game to exposes participants to coordination, cooperation and solidarity dilemmas that emerge from the interaction of environmental constraints, social norms and public policies. Developed with the support of FP7 project RegPol No 607022.

Session III, Stream A: Finance

On the modelling and forecasting multivariate realized volatility: Generalized Heterogeneous Autoregressive (GHAR) model

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Recent multivariate extensions of popular heterogeneous autoregressive model (HAR) for realized volatility leave substantial information un-modelled in residuals. We propose to employ a system of seemingly unrelated regressions to model and forecast realized covariance matrix to capture this information. We find that the newly proposed generalized heterogeneous autoregressive (GHAR) model outperforms competing approaches in terms of economic gains/evaluation providing better mean variance trade-off while in terms of statistical precision GHAR is not substantially dominated by any other model. Our results provide a comprehensive comparison of the performance when realized covariance, sub-sampled realized covariance and noise-robust multivariate realized kernel estimators, are used. We study the contribution of the estimators across different sampling frequencies, and we show that the multivariate realized kernel and sub-sampled realized covariance estimators deliver further gains compared to realized covariance estimated. In order to show the economic and statistical gains of the GHAR, portfolio of various sizes is used.

Assessing Banking Integration in Europe through the Dependencies of Bank Stock Prices

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Assuming the general efficiency of asset markets and ability of investors to identify banks' business prospective and risks, banks' stock prices provide useful information on their economic condition. In this paper, we suggest to use the information on European banks' stock prices to identify the state of European banking market integration. We first identify the long-run relationships in the European banking markets (as perceived by investors) by employing Engle-Granger cointegration analysis. We then construct cointegration-based networks through cointegration coefficient matrix to illustrate the whole range of available information. The bi-directed and weighted cointegration-based network is used to find most influential banks in Europe and characterize the state of market integration over several time periods of market enlargement, global financial crisis and European sovereign debt crisis. We furthermore investigate the influence of particular banks and countries by PageRank algorithm.

The discovered cointegration-based networks illustrate banks' exposures to common risks in the European banking market, which in times of crises should be also considered the most stable and predominant channels of contagion.

Quantile Coherency: A New Measure of Dependence for Economic Variables

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Economists quantify the dependence between economic variables mostly using regression analysis focusing on a linear regression, although it gives us a grand summary for the averages of the distributions corresponding to the set of regressors. While this attractive and simple methodology will characterize the dependence well under certain (rather strict) circumstances, it may give a very incomplete picture when distributions of the variables under study depart from these assumptions (Koenker and Bassett, 1978).

In addition, as noted in early work of Granger (1966), an economic variables has

typical shape of spectral distribution distinguishing an important long-term fluctuations from a short-term ones, and pointing to economic activity at different frequencies (after removal of trend in mean, as well as seasonal components). Instead of Pearson's correlation coefficient, many researchers started to use coherence (frequency dependent correlation) to investigate short-run and long-run dynamic properties of multiple time series, and identify business cycle synchronization (Croux et al., 2001). An important question proposed by one of the last published works of sir Clive Granger, which has not been answered fully by the literature yet, is if the frequency dependent relationships like long run cointegration also can be found in quantiles (Granger, 2010). This is particularly interesting for many economic problems.

In this work, we hypothesize, that origins of the dependence between economic variables can be found both in different part of the joint distribution (quantiles), and different frequencies. We will develop a new measure of dependence between economic variables, which will allow to study the frequency dependent dynamics of correlations in different quantiles of joint distribution. Although the previous literature is helpful in uncovering the origins of dependence at one of these dimensions in many important economic problems, there exists no methodology being able to characterize the dependence at quantiles and frequencies jointly.

On the Riskiness of Stocks over the Long Run: Asset-Pricing Perspectives

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Recent studies produce conflicting evidence on whether stocks are safer or riskier in the long run. This paper incorporates the implications from prominent asset-pricing models to make inferences about the predictive variance of stock returns over long horizons. In particular, we consider long-run variance from the perspective of Bayesian investors who use either prospect theory or the long-run risk model to form prior beliefs about stock return dynamics. Introducing model-based priors enforces equilibrium restrictions and reduces uncertainty about the return process. Such prior information could potentially exhibit significant effects on inferences about long-horizon variance as the sample evidence is relatively uninformative about important aspects of return dynamics and mean reversion. The analysis shows that due to the contrasting predictions of the models about these features of returns, model-based priors imply starkly different inferences about the risk of stocks over the long run. While the prospect theory investor considers long-horizon investments to be relatively safe, the long run risk investor perceives riskier equities with increasing horizons.

M&A activity and firm capital structure changes

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Recent research reveals the significant stability of the firm capital structure over long periods of time. This paper assesses the question of capital structure stability in the context of M&A activities. In particular, we focus on the changes in the leverage of acquiring and acquired firms associated with M&As. The analysis is based on UK M&As from 1996 to 2010. We find that there are no changes in the leverage of target firms generated by M&As, while the leverage of acquirers increases after the acquisition. This result is expected since acquirers often have to attract additional financing sources to complete the acquisition.

Session III, Stream B: Auctions and pricing

External validity of prospect theory: Experimental estimates vs. evidence from football betting

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In this paper, we test whether the prospect theory parameters estimated from laboratory experiments correspond to behavior in betting markets. Using Czech sports betting data, we estimate the functional forms commonly used for experimental validation of prospect theory. We find that the data are best fitted if the representative bettor is risk-loving and has a close to linear weighting function. In addition to that, we show that the traditional inverse S-shaped weighting function cannot explain the observed price data, even if bettors may differ in their risk attitudes. Therefore, the observed betting behavior represents an important deviation from the prospect theory parameterization derived in laboratory experiments.

Exclusive distribution in two-sided market: A case of music streaming services

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Spotify is the leading music streaming service. In 2014, another subscription-based music streaming service called Tidal entered the market. Tidal is owned by prominent musicians and it claims to pay the highest percentage of royalties to music artists and songwriters within the music streaming market. The key difference between Tidal and its competitors, such as Spotify, is the exclusive content as the owners and some other musicians offers their music exclusively via Tidal. The common view at such cases is that exclusive distribution harms the consumers. It prevents some consumers from subscribing certain services and those who subscribe will have to pay higher prices since exclusivity reduces rival's distribution to compete. There are at least two reasons why the market for music streaming services does not have to fit to this common view. First, it is a two-sided market as not only that subscribers benefit from the number of musicians distributed via the service but also musician benefit from the higher number of subscribers as these can increase their tour revenues. Second, there are different types of musicians and some of them may have higher benefit from the number of subscribers. The paper presents a theoretical model of a two-sided market and examines whether exclusive distributions is welfare enhancing or welfare reducing. The model is based on the competitive bottleneck model of a two sided market (Armstrong, 2006) and it is constructed in order to reflect the structure of the market for music streaming services. There are three types of agents in the model: artists, platforms and final consumers. The artists can be of two types. Famous artists attract more subscribers than non-famous artists. On the other hand, the non-famous artists enjoy higher benefit from each additional consumer on the other side of the market. Two platforms are serving the market and competing to each other. The competition between platforms is modeled via Hotelling model. The timing of the model proceeds in three stages. In the first stage, each platform decides whether to offer exclusive or non-exclusive contract. In the second stage, platforms set prices to musicians and consumers. In the last stage, musicians and consumers decide which platform to join while consumers single-home and musicians multi-home. The model is solved in two versions: with and without adverse selection. In the model without adverse selection, the platforms recognize the musician's type. In the model with adverse selection, the platforms do not recognize whether the musician is famous or non-famous. The results of the model show that both platforms exclusive distribution has little potential to harm consumers. In the model without adverse selection, the firms is not able to foreclose its competitors by offering exclusive contracts. Moreover, exclusivity makes competition between platforms more aggressive and consequently it lowers their profits. Hence, platforms do not have incentives to offer exclusive contracts. In the adverse selection version of the model, platforms offer menu of contracts such that musicians self-selects: famous musicians choose exclusive contracts

for higher price whereas non-famous musicians choose non-exclusive contracts for lower price. Therefore, exclusive contracts serves as a self-selection device. Introduction of exclusive contracts is welfare improving for a large set of model parameters as it enables to famous musicians to enter the music streaming market.

Optimal Sequential Delegation

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The paper extends the optimal delegation framework to a dynamic environment where the agent initially has private information merely about the distribution of the state and learns the true state only as the relation proceeds. The principal may want to elicit the agent's initial information and offers a menu of delegation sets where the agent first chooses a delegation set and subsequently an action within this set. We characterize environments under which it is optimal and under which it is not optimal to elicit the agent's initial information and characterize optimal delegation menus. In the former case, delegation sets may be disconnected and feature gaps.

Housing markets and their variants: computational complexity

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The model of housing market, introduced in Shapley & Scarf 1974, is a popular tool in the study of exchange of indivisible goods. It found its applications in the analysis of large-scale fairs of government-subsidized housing in China (Yuan 1996), the modern Internet-based barter exchange markets (Abraham et al. 2007), in the organization of kidney exchange for transplantations (Roth et al. 2004, Cechlárová et al. 2005) and in many other contexts.

As the extent of real markets is usually huge, it is very important to consider also computational aspects of the proposed solution notion. In most cases, graph theory provides a convenient language for the representation of the model and for the design of algorithms.

We review several modifications of the Shapley-Scarf model, including the model with several types of goods and the model with divorcing and engaged pairs. If possible, we present an efficient algorithm for computing a solution or point to the hardness of the problem.

How to Boost Revenues in First-Price Auctions? The Magic of Disclosing Only Winning Bids from Past Auctions

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Consider a long-term auctioneer who repeatedly sells identical or similar items and who might disclose selective information about past bidding. We present a theory that yields different predictions about bidding behavior depending on the information bidders are provided with, and then test it using a lab experiment. We focus on the disclosure of all bids and of winning bids only. Our theory is based on a selection bias: some of the bidders who are presented with historical winning bids mistakenly best-respond to that distribution, failing to realize that winning bids are not representative of all bids. In the steady state, this bias results in higher bids and auction revenue in comparison to the case when all bids are presented. Our experimental test confirms the qualitative predictions of the theory. On the theory side, our findings challenge the predictive power of Bayesian Nash Equilibrium based on rational bidders. On the market design side, they underline the role of historical market information as a key design choice.

Session III, Stream C: Monetary and banking

Does CEO gender influence bank risk?

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This paper addresses the effect of CEO gender on bank risk. We exploit a unique dataset of 347 Polish cooperative banks. They provide a sample of homogenous financial institutions in which the presence of female CEOs is a frequent characteristic. We find that banks headed by female CEOs are less risky as they report consistently higher capital adequacy and equity to assets ratios. Credit risk in female-led banks is not different from their peers, thus higher capital adequacy does not stem from lower asset quality and is likely to be linked to higher risk aversion of female CEOs. Our evidence supports then the view that women are more risk-averse bank CEOs than men. Our findings suggest that gender quotas in the management boards of banks can contribute to reduce risk-taking behavior.

Depreciation shocks and the bank lending activities in the EU countries

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The emerging economies in Central and Eastern European countries (CEECs) have been hit particularly hard by the financial crisis. This is generally viewed as a result of vulnerabilities that have accumulated during the pre-crisis period. The excessive consumption growth was associated with a lending boom, and the credits were provided mainly by foreign banks which invested massively in CEECs. During the financial crisis this development was negatively affected by several factors. First, several CEECs let their currencies depreciate massively in order to improve competitiveness and deal with capital flight and sudden stops of capital inflows. Second, growth forecasts for CEECs and especially for private consumption were significantly revised downward.

Both factors have important implications for foreign banks active in CEECs. Luca and Petrova (2008) and Basso, Calvo-Gonzales and Jurgilas (2011) argue that foreign banks used the easier access to international capital markets and foreign funds from their home countries for credits in CEECs. The depreciations reduced the foreign currency value of credits provided in East European currencies, thus imposing significant losses on foreign banks. As far as many foreign banks engaged in foreign currency lending, the exchange rate depreciations increased the risk of foreign currency loans (Beckmann, Fidrmuc and Stix, 2012) with similar negative implications on profits of foreign banks. The financial vulnerability in CEECs was further increased by adverse income shocks of the borrowers (Beckmann, Fidrmuc and Stix, 2012).

We show that depreciations have possibly improved the competitiveness of industrial enterprises but increase the financial vulnerability especially of foreign banks, which used foreign funds for financing their credit expansion in the all EU countries. The main objective of the paper is to identify the link between macroeconomic shocks, the institutional environment and the responses of the financial sector to the financial crisis.

The main focus is put on the impact of exchange rate depreciations, which were applied by countries with flexible exchange rate regimes. We hypothesize that the depreciations have possibly improved the competitiveness of industrial enterprises, but that they might also increase the financial vulnerability especially of foreign banks, which used foreign funds for financing their credit expansion. We compare the impact of the depreciation shock with the output and inflation shocks.

Our results confirmed that the foreign banks behave significantly differently from the domestic banks. The foreign banks respond strongly to the development of domestic demand and are influenced stronger by all macroeconomic shocks with the exception of domestic monetary policy, which is thus less efficient under strong presence of foreign banks. The effects do not change much with different level of foreign ownership.

Does Bank Competition Reduce Cost of Credit? Cross-Country Evidence from Europe

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Despite an expansive debate on the effects of bank competition, the impact of bank competition on the cost of credit has been studied only in a few single-country studies. We contribute to the literature by investigating the impact of bank competition on the cost of credit in a cross-country setting. We use a panel of firms from 20 European countries covering the period 2001 – 2011 to investigate this issue and consider a broad set of indicators to measure bank competition: two structural measures (Herfindahl index, and CR5), and two non-structural indicators (Lerner index, and the H-statistic). We find that bank competition increases cost of credit. We observe that this positive influence of bank competition is stronger for smaller companies. These findings accord with the information hypothesis according to which competition enhances cost of credit, because lower competition provides incentives for banks to invest in soft information. This positive impact of bank competition is however influenced by the institutional and economic framework, as well as by the crisis.

How real is political uncertainty? The effect of election's on firms' business climate

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There is no doubt that political uncertainty can have real economic effects. The importance of this relationship has become strikingly obvious again during the financial and Euro crisis: if firms are uncertain which political measures the government will put into action to stabilize the economy, then this uncertainty alone can be an incentive to adapt a different strategy. If, for example, political uncertainty induces a more careful and awaiting firm behavior, then this can intensify the crisis.

Elections create a classical form of political uncertainty. In this paper we analyze the economic consequences of political uncertainty with the help of German micro data. We investigate the effect of elections in the German federal states (Landtagswahlen) on the business climate as perceived by firms. Because the elections take place at different points in time, we can compare the firms' perception around an election in one federal state with the firms' perception in the other federal states without elections using a difference-in-difference approach. Our results show that firms report a more positive business climate during the six month preceding an election but revise their perceptions after the election.

Dynamics of Access to Credit

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In continental Europe bank loans are the most important source of capital. Therefore, the access to credit is crucially important for firms' performance and may have a long-term impact on growth, competitiveness, exports, employment, and innovations. This can also explain why national authorities undertook a tremendous effort to secure that banks keep lending during the financial crisis.

Survey data are a unique source of information to evaluate the access to credit. They shed light on factors driving a firm's perceptions of credit access. If surveys are available over a longer period, as in our data set, they show the development of access to credit and the impact of economic and monetary policies. Moreover, they reflect how firm specific events, for example credit negotiations, influence the firm's perceptions. Firm-level data can be used to analyze possible asymmetry of successful and unsuccessful credit applications. Regular surveys document the persistence of credit negotiations on firm behavior. Finally, surveys can show under which conditions firms may become discouraged which will lower their ambitions and investment plans.

To analyze the behavioral aspects of access to credit we use unique information from the WIFO Business Survey for the period 2011 – 2013 where firms are asked

how they evaluate the lending policy of the banks in Austria (which we refer to as perceptions). In addition to their perceptions firms report their direct credit market experience, i.e. whether they have had credit demand during the last three months and whether they were fully or partly successful in obtaining a loan or not.

The survey data show surprising dynamics in credit access behind relatively stable macroeconomic trends. On the one hand, the share of firms perceiving the lending policy as restrictive (accommodating) was stable at about 33 percent (about 9 percent). On the other hand, however, credit access of the firms is very dynamic. On average, each firm had 0.9 loans. However, half of the firms did not ask for loans between during the analyzed periods. Thus, firms with access to credit had in average 2.5 loans within the 10 analyzed surveys. Nearly all firms with loans had at least one period when they did not receive a loan despite they tried so. Similarly, nearly all firms with demand but no loans in a particular period had loans in a different period. Finally, we find a significant and persistent fraction of firms in our data sample that is discouraged.

Our results show that firms have a better perception of the lending policy only if they received a loan for which amount and interest rate were as expected. However, if the bank rejected their application or the amount and/ or the interest rate were not as expected, the perceived lending policy is worse. The effects of acceptance or rejection of a loan application differ not only in sign but also in their persistence. Firms with an unrestricted approval perceive the lending policy as better for about six month. In contrast, firms with a loan rejection have a worse perception for about one and a half years.

Thus, our findings suggest that the experience of the individual firm is a key driver of perceived lending. Moreover, access to credit in a particular period may have a relatively long-term impact on the firms' behavior. As a result, even transitory effects, such as a liquidity shortage, may have a long-lasting impact on firms' decisions on, for example, investment or employment.

Session IV, Stream A: Macro and growth

Composition of Fiscal Consolidation in the European Transition Economies

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Significant deterioration in the fiscal stance during the crisis period revealed urgent calls for a fiscal consolidation. To reduce excessive fiscal deficits and raising sovereign debt burden governments employed a number of consolidating packages consisting of discrete adjustments on both revenues and expenditures sides. However, an appropriate composition of fiscal consolidation without accompanied negative side effects on the economic growth became the most challenging objective for fiscal authorities. In the paper we have identified episodes of successful and unsuccessful (cold showers versus gradual) fiscal consolidations in ten European transition economies during last two decades. We have investigated a limited evidence of successful stories of fiscal consolidation effort. Governments clearly preferred revenue based fiscal adjustments (via increase in taxes) to improve the fiscal stance hesitating to employ discretionary changes on revenue side with generally less negative interference with the real output.

Exchange Rate Dynamics and its Effect on Macroeconomic Volatility in Selected CEE Countries

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Our work focuses on the role of the real exchange rate shock for the volatility of business cycle by assessing the contribution of symmetric, asymmetric and real exchange rate shocks to overall macroeconomic volatility.

Motivation for our work originates from the theoretical role of the real exchange rate as an important adjustment mechanism available in the presence of asymmetric/individual shocks. In our sample we have both countries that adopted common currency, and countries which retained their independent currency, yet in both of these cases real exchange rate can simultaneously serve as adjustment mechanism that absorbs volatility and as a generator of business cycle volatility by itself. The goal of our work is to assess what role dominates.

The view of the exchange rate as a shock absorber has been recently challenged by a number of authors, who have used alternative approaches and identified cases where the exchange rate takes the role of generator of the business cycle volatility. The wide spectrum of results in the previous studies motivates us to assess the role of the exchange rate in absorbing economic shocks for group of Central and East European countries.

Structural VAR models have become one of the most widely used tools for identifying structural shocks. Earlier studies, e.g. Clarida and Gali (1994), Thomas (1997) or Farrant and Peersman (2006), set their two country models in form of ratios of domestic to foreign variable (relative terms). This form imposes strong implicit assumption that the transmission of symmetric/common shock is the same in both countries and any deviation is rendered as response to an asymmetric shock. Hence, these models are able to identify only contributions of asymmetric shocks to relative macroeconomic volatility and are not able to judge the relative importance of symmetric to asymmetric shocks for business cycle. This drawback may lead to overrating the contribution of asymmetric shock in case when overall volatility is mostly generated by the symmetric shocks.

Therefore, our work uses model that is able to distinguish between symmetric and asymmetric shocks. We use SVAR approach and rely on the sign restriction identification method. The sign restriction meth-od was introduced by Uhlig (2005) and has become a standard analytical tool of the modern macroeco-nomics. Recently, Peersman (2011) employ this methodology to analyze the contribution of nominal shocks to macroeconomic volatility.

In our sign restriction identification scheme we modify approach sketched by Peersman (2011) and define sign restrictions so that the contribution of symmetric and asymmetric shocks can be identified while keeping consistency with the scheme used in the relative models. Our modification is based on Fry and Pagan (2011) who criticize the popular approach to report median response at each horizon separately for each variable, thus making the responses of such models inconsistent across all variables. Therefore, we employ the closest to median approach applied over all variables simultaneously and we able to identify the sole model.

Our results are consistent with conclusion that the real exchange rate is rather shock absorber than a shock generator, as we are not able to find country where the prevailing fraction of business cycle volatility originates from the real exchange rate shock.

Results suggest that the CEE region is formed by heterogeneous countries that can be attributed to differences in monetary policy and exchange rate regimes, as well as to structural differences. Shock contribution analysis allows us to conclude that for prices and interest rate symmetric shocks are prevailing and countries can be clustered with respect to extent of the symmetric shock contribution. The most distinct clusters can be identified when considering contributions to output volatility. For Romania the asymmetric shock prevails, while for Bulgaria, Latvia and Slovakia symmetric and asymmetric shocks contribute with almost equal weights. For the rest of the countries the symmetric shock is prevailing.

We further decompose historical movements in model variables to check for historical contribution of each shock to a country's business cycle. Among others, two interesting results follow from this analysis.

In case of Bulgaria, we identify the substantial role of real exchange rate shocks, the finding consistent with its currency board policy. In pre-crisis and crisis times exchange rate shock dominated output and prices volatility, with the declining role after 2009. A similar pattern is observed for Romania but with stronger exchange rate shock influence. This is the result of the explicit exchange rate targeting in Bulgarian case.

Also, the role of monetary policy in the Czech Republic for the evolution of output over the period 2005–2011 should be noted. In the initial stage the symmetric policy shock contributes positively to growth. However, as the output deviation becomes too large (early 2007) it turns to be restrictive. After the slowdown hit economy (early 2009), the policy is eased again to support the recovery. Similar pattern is observed for domestic prices development. Analogical behavior of the domestic output within this group is found in Poland and Latvia.

Slovakia's invisible credit boom

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In its Alert Mechanism Report (AMR) 2015, the European Commission concluded that Slovakia's macroeconomic challenges do not represent imbalances in the sense of the MIP. This conclusion was supported by the fact that only two indicators, namely the NIIP and the unemployment rate, were above their respective indicative thresholds in the updated scoreboard. Nevertheless, the AMR also pointed out that careful surveillance and policy coordination are necessary on a continuous basis for all Member States to identify emerging risks and put forward the policies that contribute to growth and jobs.

Since its entry into the EU in 2004, Slovakia has experienced a continuous expansion in bank lending to the non-financial private sector. While credit growth to the NFCs sputtered in the aftermath of the 2008/09 global financial crisis, credit to households continued to increase at double digit growth rates. It was largely driven by MFI lending for house purchases which increased at an average rate of almost 13% between 2010 and 2014 and amounted to some 77% of total MFI loans to individual households at the end of 2014.

At the aggregate MFI sector level, the credit expansion was in the post-crisis period to a large extent funded by the accompanying deposit growth. The increase in the MFI loan-to-deposit ratio of the non-financial private sector from 91% in 2010 to 96% in 2014 was relatively subdued, in particular when compared to 22 percentage point increase in this ratio between 2005 and 2009. Reflecting the sectoral composition of lending growth, the 24-percent-increase in deposit holdings of the non-financial private sector between end-2009 and end-2014 was predominantly (77%) accounted for by households' deposit growth.

At the same time, the reliance on securitisation of mortgage claims in funding of MFI lending for house purchases has decreased in the post-crisis period. Whereas the stock of mortgage bonds sold by domestic MFIs covered 36% of their lending for house purchases at the end of 2009, the ratio declined to 21% by end-2014.

The rapid expansion of bank lending for house purchases has seemingly not been reflected neither in the overall level of construction activity not in the aggregate house price developments. Nevertheless, the overall country-wide house price evolution hides important regional disparities.

Moreover, indebtedness of Slovak households appears relatively low, if compared to their euro-area peers.

At the same time, after having run an external deficit up to 2011, Slovakia has exhibited an external surplus since 2012. The reversal of the external balance largely reflected the adjustment in net current account flows. However, the improvement on the real side of the balance of payments (BoP) was not consistently reflected on its financial side. Although Slovakia temporarily ceased to accumulate net financial liabilities in 2012, net financial flows are declared to have become negative again in 2013 and to have dropped to below -3% of GDP in 2014. This is due to the fact in parallel with the improvement in the external balance, the absolute value of net errors and omissions (E&O) included the BoP also increased from just 0.4% of GDP in 2010 to around 5% of GDP in 2013 and 4% of GDP in 2014. As a result, if all net E&Os were added to the external balance, it would actually show a deficit of about 2% of

GDP in 2013 and 3% of GDP in 2014. Hence, whereas it is unlikely that net E&Os would be predominantly related to the real side of the BoP as financial flows are in general considered more difficult to fully capture there is nevertheless a considerable degree of uncertainty about the precise composition of the Slovak BoP.

Cross-checking against the evolution of the net international investment position (NIIP) suggests that Slovakia has in fact continued to accumulate net financial liabilities in 2013 and 2014. After having improved by almost 1% of GDP in 2012, the NIIP deteriorated again by some 3% of GDP in 2013 and almost 8% of GDP in 2014. While Slovakia has continued to accumulate gross foreign assets, its gross foreign liabilities expanded at a faster pace, mainly driven by increased holdings of government securities by non-residents. This is the consequence of persistent, though declining, general government deficits combined with relatively attractive credit ratings (A/A+/A2).

It should be noted that annual increases in MFI loans to households for house purchases averaged 2.1% of GDP over the last 5 years and have thus provided a substantial support to domestic demand. As a result, an eventually unavoidable slowdown in the pace of credit expansion will have a significant impact on domestic demand growth. Moreover, if the interruption in credit expansion is triggered by some other shock (e.g. interest rate shock), the overall impact on domestic economic activity could be even more substantial.

Fiscal Policy and the Term Structure of Interest Rates

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We examine the role of government spending in the dynamics of the term structure of interest rates. Are frequent changes and implied uncertainty in the size of government spending important for the market yields? How does it depend on monetary policy conduct? Can fiscal policy immunize its impact on the term structure of interest rates? To answer this questions we lay out a New Keynesian DSGE model with recursive preferences, nominal rigidities and Markov switching in monetary policy rule. We show that i) the yields jump up after rise in government spending; ii) turbulent fiscal policy amplifies the precautionary saving motive and risk aversion; iii) monetary policy plays crucial role in the transition mechanism of the government spending shock and iv) by commitment to fiscal consolidation government can immunize its impact on the term structure.

Monetary Facts Revisited

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This paper uses a cross-country database covering 51 economies over the post war period to revisit two key monetary relationships: (i) the long-run link between money growth and inflation and (ii) the link between credit growth and financial crises. The analysis suggests that the empirical strength of the two relationships depends on the inflation regime, but in opposite directions. While the former is much weaker in low inflation regimes, the latter is considerably stronger.

Session IV, Stream B: Experimental and behavioral economics

Political Challengers and Opportunism in Public Procurement: Evidence from Electoral Quasi-Experiment

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This paper presents evidence that politicians behave less opportunistically in public procurement when more political parties enter legislature. Because political representation cannot be treated as exogenous, I exploit quasi-random variation in the vote share of political parties near the threshold in proportional elections to predict party's entry into legislature. Using data from municipal governments from the Czech Republic, I show that legislatures with one additional challenger allocate fewer procurements to political donors, double price savings in procurement and use more competitive procurement auctions. The entry of challengers therefore leads to substantial economic benefits by promoting political accountability and disciplining the rent-seeking behavior of politicians in procurement.

Collaboration and Research Impact: the case of economics publications

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This study aims to examine the relationships between characteristics of author teams and publication productivity in the field of economics. We measure productivity by means of citation counts, journal ranking, and journal impact factor (JIF). The analysis employs cross-sectional data of 1,512 journal publications published in 2012 in 16 economics journals and is based on spearman correlation and quantile regression. The findings show a significantly positive effect of team size on publication productivity, whereas there is a negative relationship between teams being female dominated and research productivity. The analysis also indicates a negative relationship between gender diversity and research productivity, that is, research teams consisting of only one gender perform better in terms of research quality than gender-mixed teams.

Introduction

Scientific knowledge production has changed dramatically over the past few decades from being dominated by sole authors or small teams of researchers to a situation where most papers are co-authored, sometimes involving relatively large research teams. This shift leads to a question of how research collaboration impacts the quality of scientific publications. Does research collaboration lead to higher average quality of publications? Literature has long been investigating the influence of collaboration regarding its effect on productivity in terms of publication rates and citation counts; however, the impact of characteristics of author teams on research impact has been less focused particularly in social sciences. This study aims to examine what characteristics of author teams (i.e., gender, nationality, seniority, academic rank, and team size) affect publication productivity in economics and how they impact the research outcomes measuring from citation counts, journal ranking lists, and journal impact factor.

Methodology

The sample data of this study were obtained from 1,512 publications published in 2012 from 16 economics journals listed in Association of Business Schools (ABS) Journal Quality Guide (2010) and were used to examine the relationship between characteristics of co-authorship and research productivity. Special issues of the selected journals were excluded from the analysis because the selection criteria for including papers in special issues may be different from standard issues. The detailed information of each economist and publication were obtained from multiple sources such as personal homepage, curriculum vitae, and institutional website.

Productivity in this study focuses on the publication impact in term of quality rather quantity. To this effect, various indices are applied to measure the productivity of research. Specifically, dependent variable, a weighted productivity, combines normalized citations (50%), normalized journal ranking (30%), and normalized journal impact factor from Thomson Reuters Journal Citation Reports (20%). The other dependent variables, an average productivity, is considered as a benchmark for quality and it was calculated from the same set of indexes as for the weighted productivity. The two dependent variables are analysed separately in different models. The variables, gender diversity, female dominated team, number of author(s) in team, academic rank diversity, percentage of full professor in team, average professional age, nationality diversity, and article length, are considered as independent variables in the models.

Conclusions

-The statistical analysis reveals a significant negative relationship (p ¡ 0.1) between gender diversity within the author team and team research productivity when considering weighted productivity as the dependent variable. Using average productivity as the dependent variable, the results show a negative effect of gender diversity on productivity; however, it is not statistically significant (p = 0.141).

-The model using weighted productivity as the dependent variable reveals a significant negative effect of female-dominated team on research productivity (p ¡ 0.1). Also, the results from the model using average productivity show a significant negative relationship (p ¡ 0.05) between female dominance and productivity.

-Results of the analysis using weighted productivity as the dependent variable show a significant positive interaction (p ¡ 0.05) between team size and productivity. The model using average productivity as the dependent variable also confirms the significant positive interaction (p ¡ 0.05) between variables.

-Results of the analysis using weighted productivity as the dependent variable indicate a positive relationship between academic rank diversity and team research productivity but it falls short of statistical significance (p = 0.451). The insignificant positive relationship (p = 0.700) is also confirmed in the model using average productivity as a dependent variable.

-For seniority, two variables, average seniority and percentage of senior authors, are applied in the analysis. Using weighted productivity as a dependent variable, the results show a negative effect of average seniority on productivity (p = 0.648) and a positive relationship between percentage of senior author and productivity (p = 0.492); however, they are not statistically significant. Also, insignificant results are confirmed by the model using average productivity as the dependent variable.

-The model using weighted productivity as the dependent variable shows a negative effect of nationality diversity on productivity (p = 0.807) while the model using average productivity shows a positive relationship (p = 0.978) between nationality diversity and research productivity. However, the results from both models are not statistically significant.

Motivation to corruption – economical experiment

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Corruption has been present in the society for ages and it keeps influencing many aspects of the people's life. Recently, there have been a growing number of economical experiments exploring the corrupt behavior of subjects in different roles, cultures and under various conditions. This paper is inspired by already conducted experiments by Abbink, Irlenbusch and Renner (2004) and Cameron et al. (2009) but brings a new design of the corrupt situation.

We conducted an experiment to examine the question whether the officials awarded with higher wages are less likely to accept a bribe or not. In two treatments, the motivators of government, officials and citizens in the corrupt situations are examined. In the exogenous treatment (ExT), government sets an individual wage for the official choosing from 5 levels and is paid the average wage plus the remaining budget as a bonus. Official is then informed about his wage and is offered a bribe, value of which does not change. He can either accept or reject the bribe and his action influences government and also a citizen. Accepting imposes negative externality on the government and citizen and official receives the wage plus the bribe value. Citizen can report the corruption but it brings him additional costs and punishment for an official.

We separate the influence of the wage choice of government in the endogenous treatment (EnT) where the ultimatum game is replaced with the strategy game so an official can decide if to accept or reject the bribe separately for changing wage levels. The citizen also decides if to report or not report the bribe acceptance at all the wage levels. Here we can watch the change of the behavior of both roles for changing wages.

The results of ExT indicate that almost 50% of the subjects were maximizing their profit and ignoring the other incentives. The government was generally awarding the officials with very low wage and keeping as much as possible for themselves. The decisions of officials were influenced mostly by the low punishment in case of the acceptance of the bribe, as they were better-off even when they were reported by the official, and the low wage given by the government, considered to be unfair.

The EnT shows quite confusing results about the effect of the wage level. The wage apparently works both ways as from those 45% officials who changed their decision depending on the wage level, some accepted the bribe when the wage was low, the others vice-versa. The citizens either did not report the corruption at all to keep their payoff as high as possible or reported at any wage level because of their morale or reported just when the official had high wage.

According to the results of both treatments we can conclude that the government maximizes their profit and their role as a superior institution able to influence the wage does not affect the official´s decision. The wage level itself does not play as significant role in the official´s decision as seems to do the combination of the level and probability of punishment and personal characteristics of subject. According to the collected data, the hypothesis that the higher the wage, the lower the probability of accepting the bribe by Official, could not be confirmed.

Life Satisfaction in Eastern Europe

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Citizens in Eastern Europe are less satisfied with life than their peers in other industrialized countries. This is true even after controlling for their standard of living, life expectancy, and measures of income inequality. While economic performance typically explains a sizeable part of the variation in subjective well-being across countries, in the case of the societies that had undergone an economic transition in the preceding two decades, income gains have often not translated into higher happiness. In this paper we use evidence from various survey sources from 1990s to 2014 to shed light on this puzzle. We verify whether the income-happiness relationship holds for both groups of countries. Although CEE countries are typically unhappier, we find that – within the CEE group – the citizens of more economically developed countries are on average more satisfied than the respondents in less developed countries. In fact, the income-satisfaction slope is steeper for CEE economies. Finally, the gap in subjective well-being between market and transition economies closes once we account for differences in the pervasiveness of corruption.

Sustainability of Cross-border Regions? Behavioural Approaches

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System of EU governance in the last decades underwent many changes during ongoing process of the European integration and the globalization. The dominant position of the traditional states as the main governmental bodies responsible for decision-making is debating and the responsibility is moving towards other levels of government and other non-state actors. Competencies are delegating from the state up to European or down to regional and local levels (Marks, 1993, Rosenau, 1997; Breretor and Temple, 1999; Peters and Pierre, 2001; Hooghe and Marks, 2003; Bache and Flinders, 2004). Moreover, there is a significant increase in complexity of decision making. The decision-making takes place through different governmental levels with an increasing role of non-state actors resulting in diversifying powers and interests and thus responsibility of decision-making becoming fuzzier.

The subsidiarity of EU regional policy and increasing importance of cross-border relations is going together with the ongoing process of European integration. But despite great efforts of the European Union the inter-regional cross-border cooperation in Europe remains behind expectations and border regions remain peripheries from the economic point of view. However, there is a potential for cooperation within networks of cross-border actors to strengthen their competitiveness. Another conflicting situation arises because cross-border regions have usually polycentric organization which is facing hierarchical governance structures.

On the one hand, the processes in evolution of the governance in the EU can lead towards democratization of decision making. On the other hand, it results in numerous conflicts among sectoral policies and diverse actors. One of key challenges of new forms of governance is to identify appropriate mechanisms to coordinate actors and their interests that emerge at multiple scales and diversified space (Rhodes, 1996).

A purposeful institutional and behavioural change following evolution of polycentric regional relations is seen as essential for coordination of actors and power of EU policies for regional development in cross-border regions. Moreover, it can lead to the building of effective, resilient institutional arrangements. We argue that behavioural and experimental approaches can help to identify such as arrangements.

Behavioural approaches represent research methods allowing to model and simulate decision-making processes under the uncertainty and multiple interests. For example, experiments from the field of common pool resources and public goods conducted all around the world provide evidence that communication improves cooperation on social dilemma solutions (Ostrom, 1998). However, intense socio-ecological dynamics increases demand for new instruments capable to capture multi-temporal and spatial dynamics. Role board games are interactive agent based models to simulate participants' interaction under the controlled conditions. Role board games allow participants coming from the most contrasting social backgrounds to understand difficulties and challenges of collective action with diverse interests of multi actors (Poteete, Janssen, Ostrom, 2010).

The paper assesses and demonstrates potential of behavioural approaches to find novel governance models for successful cooperation in multi-actor decision making of cross-border regions. The potential for analysis of social dilemma in energy use and potential of energetic innovations in cross-border polarization is partly discussed. Finally, the paper introduces the newly developed innovative research tool: role board game Green Energy. The game uses the context of common pool resource of renewable energy to stimulate the complexity of interaction of diverse actors in energy use of cross-border regions. Participants hold different social roles (politics, businessmen, civil society) with different tasks during the game and they are exposed to coordination, cooperation and solidarity dilemmas that emerge from the interaction of environmental constraints, social norms and public policies. Participants are confronted with social dilemmas whether follow their individual (short-term) or collective (long-term) objectives. The game aims at simulating the complexity of cooperation and decision-making among different interest groups to collectively manage and use the resource in sustainable way attempting to avoid overexploitation.

Special session III – Stock market networks: CIMRMAN's session

Financial Contagion in Emerging Markets: Evidence Using a New Measure

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We examine whether there is a financial contagion from the U.S. stock market to six Central and Eastern European stock markets. We propose a new measure of contagion examining whether volatility shocks in the U.S. stock market, coupled with negative returns are followed by higher co-exceedance between U.S. and emerging stock markets. Using this new measure and controlling for a set of market related variables we show, that during the period from 1998 to 2014, financial contagion has occurred, i.e. unexpected negative events on the U.S. market are followed by higher co-exceedance between U.S. and Central and Eastern European stock markets.

Asymmetric connectedness on the U.S. stock market: Bad and good volatility spillovers

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This paper suggests how to quantify asymmetries in volatility spillovers that emerge due to bad and good volatility. Using data covering most liquid U.S. stocks in seven sectors, we provide ample evidence of the asymmetric connectedness of stocks at the disaggregate level. Moreover, the spillovers of bad and good volatility are transmitted at different magnitudes that sizably change over time in different sectors. While negative spillovers are often of substantial magnitudes, they do not strictly dominate positive spillovers. We find that the overall intra-market connectedness of U.S. stocks increased substantially during the financial crisis.

Realized wavelet-based estimation of integrated covariance and co-jumps in the presence of noise

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Wavelet-based estimator of integrated covariation is proposed. Basing our estimator in two-scale covariance framework, we are able to utilize all available data and get unbiased estimator in the presence of noise as well. In addition, we focus on detection of co-jumps, and our estimator is able to distinguish between idiosyncratic jumps and co-jumps. The estimator is tested in a small sample numerical study, and is compared to other popular integrated covariation estimators under different simulation settings with changing noise as well as jump and co-jump levels. The results reveal that our wavelet-based estimator is able to estimate the realized measures with the greatest precision. Another notable contribution lies in the application of the presented theory. Our time-frequency estimators not only produce more efficient estimates, but also decompose the integrated covariation into arbitrarily chosen investment horizons.

Return spillovers around the globe: A network approach

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The structure of return spillovers is examined by constructing Granger causality networks using daily closing prices of 40 developed markets from 2nd January 2006 to 31st December 2014. The data is properly aligned to take into account non-synchronous trading effects. By conducting a rolling window spatial probit analysis on the set of edges of Granger causality networks, we confirm the significance of temporal proximity and preferential attachment on edge creation. We extend the analysis by incorporating market specific factors, such as market capitalization, turnover and volatility.

Session V, Stream A: Finance

Predictive Power of Google Search Volume on Stock Returns

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We investigate whether Google search statistics can be used to forecast stock returns over different time horizons. We use daily, weekly and quarterly Google searches, covering the period from 2010 to 2014. The results show a small, positive short-term relationship between daily searches and excess stock returns; a negative relationship between weekly searches and excess returns, with subsequent reversal; while quarterly searches are positively related to excess returns, without reversal. Moreover, the connection between searches and subsequent returns is much stronger for smaller companies. Finally, we examine a trading strategy based on our findings and find that our strategy outperforms passive strategy even after taking transaction costs into account.

"The Future Is in Your Hands": Active Pension Decisions

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Demographers' forecasts regarding the future age distribution of the population generate intense discussions regarding the sustainability of state pension systems and future pension claims. The discussions are very dynamic, especially in Central and Eastern European counties, where accumulation of savings for retirement in private funds by individuals does not have a long tradition. The paper focuses on the clarification of the characteristics that determine if individuals make active pension decisions. Based on the data obtained from the Household Finance and Consumption Survey conducted in the Slovak Republic in 2010, we analyze three specific forms of savings for retirement: voluntarily participation on the second pension pillar, participation in the third pension pillar, participation in voluntary pension scheme or life insurance contract. Based on the results of the logistic regression, we conclude that the participation in active pension decisions is in general driven by higher education, possibility of financial help from friends and family, financial wealth of the household and higher income of the elderly in the household. In contrary to US and Western European studies, gender and marital status do not represent significant factors in our study.

Effects of export spillovers, FDI, and ownership structures on firms' performance

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The literature analyzing the FDI effects on host economies chiefly explores horizontal and vertical directions. A horizontal level represents interactions among the FDI and its local competitors. A vertical level represents interactions of the FDI with its suppliers or customers and can be further divided into upstream (backward linkages) and downstream (forward linkages) interactions. For both directions of effects the literature recognizes two main channels of interactions between the FDI and other firms in the economy. One channel involves changes in market structure: increase of competition on horizontal level is potentially off-set by higher demand for intermediate goods on the vertical level. Second channel involves technological spillovers in the form of the technology transfers from the FDI that positively affect local firms.

In connection to the above, simple theoretical models consider variants of three different scenarios: i) the goods on the domestic market are produced by domestic firms, ii) the goods are produced by FDI operating in the domestic market and iii) the goods are imported from abroad.

While theoretical models conclude that second and third scenarios increase competition within industry and could crowd out the local firms, the empirical results suggest that the overall effect strongly depends on the exports of the FDI firm, as well as the interactions of the FDI with the local suppliers (horizontal level effects). We consider the FDI production combined with traded output and analyze interactions at horizontal and vertical levels, including exports from the local economy. For our analysis we employ double-digit industry-sector data from the Amadeus database to cover the firm level activity in the European Union countries. We further link data on firm, sector and type of the goods produced with the BACI database covering the detailed exchange of goods between countries. Based on the availability of the reliable and detailed ownership structure data we cover period 2000-2013. We bring a comprehensive evidence of export spillovers in FDI host countries.

Modeling Ratings of Corporate Financial Strength

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The motivation of the paper begins with the fact that the reliable corporate credit rating, or an early-warning model for declaring financial vulnerability, will certainly benefit the potential lender concerning the risk of a debt. In this line, many institutions like banks, insurance companies or suppliers request the external rating agencies or use the internal ratings for determining how large the risk can be expected. There is a very large literature on rating adequacy with the aim to explore the most successful model in the terms of its usefulness for the entities that are in transactional dependency with respect to the evaluated entity and for maintaining the financial stability in general. The goal of the paper is to examine the quality of corporate rating assessment using the robust nonparametric efficiency concepts. In particular, the interest is to investigate whether corporate ratings are in line with what fundamental firm indicators selected on the basis of scientific and professional resources, empirical studies and officially presented methodologies processed by individual rating agencies suggest.

The nonparametric efficiency methods are used in a non-standard interpretation way. Getting back to the basic ideas, the efficiency of firm is measured by benchmarking its performance against a common frontier determined by the firms in the sample. Here, instead of measuring the ability of a firm to produce the most output with a given amount of inputs (output orientation), we employ the following idea. If some firm with given input firm characteristics can produce the rating A (in fact, it is labeled with A grade), then also a firm with same/similar input characteristics, in the context of frontier efficiency, should be able to produce the same output, i.e. it also deserves to get the A rating. This implies the possibility of what we call "misratings" or "misalignments" in corporate rating assessment, consisting of two types: i) the firm is being underrated, it deserves rating upgrades; ii) the firm is being overrated, it needs downgrades.

The most known traditional nonparametric estimators, based on envelopment techniques, are the Data Envelopment Analysis (DEA) formulated in the modern version by Charnes et al. (1978), and the Free Disposal Hull (FDH) formulated later by Deprins et al. (1984). DEA yields the "best-practice" frontier and compares each firm with only these "best" firms lying on the frontier and their convex combinations. There is a connection to our idea to investigate how much output (rating) should be reported for a given firm based on exactly such comparison. The efficiency values higher than one represent the cases of underrating.

The DEA/FDH estimators envelop all the data points by constructions and so are very sensitive to outliers or extremes. In practice, the firms in the sample might be compared to the frontier which may not represent accessible technologies. In the literature, there are few approaches how to overcome this difficulty, i.e. in particular in Wilson (1993, 1995), Sousa and Stošić (2005), Yang et al. (2010). In this line, a more general and appealing concept of partial frontiers (robust nonparametric frontier estimators) was introduced where the basic idea is to keep the influential observations above the frontier in the output-oriented case (below the frontier in the input orientation) and marked them as "super-efficient". We exploit these robust frontier methods in the context of modeling corporate rating which should be considered innovative in this literature. Particularly, the analysis is performed using the unconditional quantile-based frontier introduced by Daouia, Simar and Wilson (2014) as the extension of Daouia and Simar (2007)'s conditional quantile-based frontier. It requires the probabilistic formulation of efficiency concepts following Daraio and Simar (2005) who extended the ideas of Cazals et al. (2002). Thus, some of the firms might be located above the frontier and do not serve as the rating benchmarks to the others. Such efficiencies estimates are lower than one and the overrating can be captured.

The data have been collected from the Orbis database edited by Bureau van Dijk. The database offers a number of different views and methodologies to capture the financial strength of companies. We chose CRIF as one of the recognized rating agencies in Europe and CRIF Financial Stability Score as a financial stability scoring system to assess the overall financial health of a company at a given point in time. It ranks company's financial status among the peers from 0 to 1000 where 1000 is the strongest score. Regarding to inputs of the efficiency model, it is doubtful whether each available variable can be used to explain the financial health of the company. After careful consideration adopted by representative papers we choose the appropriate variables in the categories: a) profitability, b) liquidity, c) leverage, d) solvency, e) activity, i.e. a list of 22 potentially helpful variables (ratios) and test their relevance in our setting. The geographical coverage of the paper covers four countries: the Czech Republic, Hungary, Poland, and Slovakia. The outlined data are available for the year 2013.

The contribution or relevance of the paper is following: i) Our paper is related to the literature on rating adequacy. With the exception of Duygun et al. (2014), who consider a case of sovereign credit ratings, we are the very first to tackle the issue of misratings or misalignments in corporate rating assessment using the nonparametric efficiency methods offering a variety of new insights. ii) Evaluating the empirical results, one can focus on the contributions for the firms being rated. iii) Evaluating the empirical results, one can focus on the contributions for the rating agencies as the possible way how to do backtesting of their rating procedures. iv) In general, as the further research, it is desirable to formulate the hypotheses in order to test how the different external factors might explain especially the underrating and overrating, for instance, "Has the age of the firm impact of its potential misrating? Can we assume that the firms with short history suffer from the underrating? Is there any empirical evidence?"

M&A deal initiation and managerial motivation

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On a sample of around 1000 US publicly listed target firms that is augmented by hand-collected data concerning the private selling process, we show that target versus bidder initiated M&A deals differ in two main respects. First, target initiated deals have higher insider and executive management ownership that motivates the board and management to engage in the sale. Second, target initiated firms are more levered and seem to have higher growth options. This suggests that an important motivation behind the board's decision to initiate a sale of their firm is to preserve growth options in a situation with high debt. Moreover, target initiated deal firms grant their CEOs more stocks and options just before the deal announcement, which should increase the alignment of interest between the CEO and shareholders during the acquisition negotiations. A complementary analysis, comparing the group of deal firms (together target and bidder initiated firms) to other non-deal firms that remained publicly listed, shows that the differences between deal versus non-deal firms are much larger relatively to the differences within the deal firms based on deal initiation.

Session V, Stream B: Experimental and behavioral economics

Staff rotation: Lessons from the Laboratory experiment

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Periodical rotation of the staff in public sector is widely tool both for fighting corruption and personal quality growth. European Union, United Nations, Germany, China, Japan, Canada, Russia, New Zealand or Singapore are just examples of countries whose in their law declare need for staff rotation in public office. On one hand the rotation is a tool for continues personal development of public officials, to broaden their knowledge and experience, provide new intellectual challenges and prevent staff from work depression. On the other hand staff rotation is used to fight corruption in public offices. With the respect to corruption the aim of the staff rotation mechanism is to disturb any upraising corrupt relationships between the public official and the briber.

The issue became topical in the Czech Republic as a reaction to several cases of corrupt behavior in the public administration. The analysis presented in the paper addresses to open the topic to academic discussion. The overall aim is to assess possible impacts of introduction of the staff rotation mechanism on behavior of taxpayers and public officials. We use laboratory experiment with design inspired by original study by Abbink (2004) and conducted laboratory experiment. Similarly to original design we had two treatments, one where the subjects are matched with same second player for the whole session, other treatment where the subjects are re-matched with another player at the beginning of each period but both keep their roles. The results indicate that staff rotation does not influence frequency or levels of offered bribes; however bribes are more likely to be accepted by public official when there is no rotation.

Endogenous information acquisition: an experimental study

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There is a previously accumulated evidence that people are on average overconfident regarding their own skills or knowledge. If this overconfidence has an impact on our decision making, it may lead to the suboptimal decisions. People underestimate their health problems, neglect safety rules, make wrong investment decisions, etc. (e.g. Dunning, Heath, Suls, 2004). There is also evidence that exogenous information has the power to remedy the observed sub-optimal decisions. However, the availability of the information itself does not automatically lead to improvement in decision making. In reality, the useful information is available for everybody for no, or almost no cost, in most of the cases. The problem is that the information acquisition and use of this information is based on the endogenous decision of the agents. This paper experimentally examines, using the economic experiment, endogenous decisions to acquire useful information.

The whole paper examines the behavior in the environment with costless information (or "signal") which is noisy but still informative, as this is a very close approximation to many real-life situations. There are few theories predicting the different optimal information acquisition decisions and their processing by the subjects.

Classical approach clearly predicts that the agents should use each available piece of information and base decision on it. The stream of cognitive dissonance theories (starting from Festinger, 1957) describes discomfort resulting from two (or more) contradictory beliefs at the same time. In order to avoid this discomfort one may not want to get additional signal if it may be in conflict with the previously acquired signal or with an initial belief. Koszegi (2006) introduces the concept of "ego-utility" which may lead to the limited number of signals. Some agents may sacrifice monetary payoffs in order to preserve their positive self-image.

Another theoretical approach describes the way how the agents process the already acquired signals. Benabou and Tirole (2002) explain the confirmation bias which

allows the agents to selectively choose which information will taken into account. My experimental design tries to distinguish which theories are prevalent for decision-making process of the agents in the mentioned environment.

In the first stage of the experiment the subjects are asked to answer knowledge quiz from the field they prefer. In the second, decision-making, stage, they are asked to choose one of two lotteries. The first lottery consists of known probabilities of winning either 30 CZK or 150 CZK. The second lottery offers the same potential prizes but with the probability of winning 150 CZK being equal to the proportion of the correct answers from the first stage (which is unknown for the subjects at this point). The subjects could acquire costless information which could help them to make a more profitable decision. The information was in form of signal stating if their actual performance in the quiz is "Above" or "Below" the known probability of winning 150 CZK in the first lottery. The signal is true with probability 2/3 and false with probability 1/3. They could collect up to 10 such signals. In order to test for the presence of ego-utility I varied feedback in the final stage. The subject had known that they would receive information about their actual quiz performance in half of the treatments and would not receive any feedback in the remaining treatments (and thus could create nice beliefs about their performance).

The experiment has been run using 138 subjects in the Laboratory of Experimental Economics in Prague. Only about 55% of the subjects acquired the optimal amount of information (10 signals). Interestingly, the rest mainly chose to get either no or one signal. There were almost no choice between 2 and 9 signals. This results suggest that for the subjects making suboptimal decisions, the aversion to cognitive dissonance is the prevalent motivator for those who did not choose the full set of signals. Comparing no-feedback and feedback sessions the difference between the number of acquired signals is statistically significant but in the opposite direction than predicted by the theory of ego-utility (Koszegi, 2006). Another important result is that once the signals are acquired, they are mostly followed (in 85% of the cases) regardless of the number of acquired signals. This finding works against the theory of Benabou and Tirole (2002).

This paper experimentally tested few theories about the decision making process in the situations when the useful information is available but decision, how to deal with such availability, is left to the agents. Such situations describe many real life situations with important monetary or non-monetary consequences to our lives. Therefore it is important to shed light on the decision making black-box between making the information to be available and actual decision of the agents. This paper cannot examine all possible parameterizations and subtle changes in the environment. However, I found support for predominantly rational agents theory and for cognitive dissonance aversion. On the other hand, I found a little or no evidence for the ego-utility theory and theory of information ignorance in my setting.

Framing the Nudge to Give Blood

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This paper aims to understand the effects of reminding and providing simple ways of invoking empathy and altruistic motives on the willingness to donate blood. We have conducted a randomized field experiment with 3623 blood donors from Bosnia and Herzegovina, in order to test for the most effective formulation of the letter which accompanies a request for blood donation. The first group was a baseline group which did not receive any letter. Another seven groups received letters which differed in terms of goal framing, whether the specific victim is identified in the letter, and the gender of the victim mentioned. Furthermore, the letter itself served as a specific reminder making the need for blood more salient. We found that, receiving the reminder of the need for blood in the form of a simple letter has increased the probability of coming to donate blood by 77% relative to the baseline group, suggesting that simple reminder might serve as a cost effective policy tool. At the same time, we did not find any significant difference in using gain or loss framing on the likelihood of donors responding by giving blood. Similarly, there was no significant difference in mentioning identifiable victim or mentioning statistical victims in the letter on the likelihood of donors responding by giving blood. Thus, we rule out the incidence of framing effects and identifiable victim effects in the case of blood donations.

Escaping the maximization trap in choice

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When making choices, some people never settle for what is 'good enough'– it is the best of all options they are searching for. These people, called Maximizers, want to be sure that there is no other possible option they could select, that would be better than the one they are opting for. To discover the best options possible, Maximizers can exert large amounts of time and effort, sometimes getting stuck in an obsessive search for more alternatives to compare. Tendency to maximize has been described as a personality trait stable across time, and Maximization Scale has been developed and validated to measure the trait.

Opposite to Maximizers, some people are Satisficers. When making their choices, Satisficers tend to choose options that are simply 'good enough' – that is options that meet or exceed their aspiration level in particular domain. It has been shown, that Satisficers, compared to Maximizers, engage in less exploration, ruminate about their decisions less, decide with more ease and experience less post-decision regret. Additionally, while Maximizers in general choose objectively better options, they end up less satisfied with their choices than Satisficers. In this experimental study, we explore the ways to escape the maximization trap in choice. To be more precise, we investigate information availability and ability to exit while waiting as ways to help Maximizers escape the excessive search and reduce the opportunity costs of the search.

In our experiment, we present participants with a simple choice task. The task is to select one of the alternatives offered. These alternatives have only one dimension of attributes and are linked to the payout participants receive at the end of the experiment, making it clear to see which alternative generates the most money. Alternatively, participants can choose to expand the choice set by one more option randomly generated from underlying distribution, and they can do so repeatedly. This choice set expansion provides a chance to 'uncover' better option that was not previously available. However, this choice set expansion comes at a price: subject has to wait for certain time period t, until the new option shows up. Additionally, to simulate the real world conditions, t increases with each iteration. Therefore, the time subject has to wait longer to 'uncover' each following option. The experiment consists of two parts: first part, as described above, is the exploration and decision-making task. The second part is real effort task, where subjects earn money for performing simple repetitive task. The two parts combined take the same amount of time across participants, thus introducing opportunity costs into the picture. Spending time waiting for additional option to show up in the first task (hoping to increase the payout in that task) is effectively a lost opportunity to spend that time earning money in the second task. Apart from the experiment itself, we administer the maximization scale to subjects in order to identify the Maximizers and Satisficers.

We hypothesize that Maximizers, in contrast to Satisficers, expand the choice set more, making more options available to them and thus selecting better (i.e. generating higher payouts) options in the first task. At the same time, we expect Maximizers to earn less money from the second task. This is again related to the fact that they expand the choice set in the first task more, leaving them with less time to earn money in the real effort task.

As mentioned above, we examine various ways to help Maximizers not to engage to excessive search. These include opportunity to exit while waiting and information availability. Experimental treatments correspond to these. Once they decided to expand the choice set, participants need to wait for certain period of time, thus inducing opportunity costs to choice set expansion. In the 'Opportunity to exit' treatment, there is an exit button ("I wish to go back, indicate my decision and proceed to real effort task") available during the waiting period. Participants in this treatment can change their mind about expanding the choice set at any time. Other treatments vary in the degree of information available to participants prior to entering the first task. This information includes the nature of the best option that can emerge in the choice set (effectively setting an aspiration level for participants) or the information on how many choice set expansions majority of the participants in previous trials executed.

We look at how the maximization score is related to the number of items uncovered and to the total payouts. Also we investigate the effectiveness of different approaches to help Maximizers not to ruminate and over-think their decisions. We expect our findings to shed more light on how Maximizers and Satisficers make their decision under various ecological settings, and to derive some practical recommendations for people who experience being stuck in the maximization trap.

Happiness and Religion

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We use five ways of the European Social Survey, covering 2000 to 2008, to analyze the effect of religion on happiness. Our findings confirm that religious individuals are generally happier than non-religious ones. When we seek to disentangle the effects of belonging to an organized religion from the effect of holding religious beliefs, we find that the former lowers happiness while the latter raises it. We interpret this as evidence that the tangible aspects of religion (such as abiding by restrictions on consumption and behavior) decrease happiness while the spiritual aspects increase it. We also find important differences among members of different religious denominations, and between men and women, with females more adversely affected by the tangible aspects of belonging to a religion.

Session V, Stream C: Labor

Bounds on Average Treatment Effects using Linear Programming

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The recent literature on the average effect of parent's schooling on children's schooling appears inconclusive. Identification strategies based on twins, adoptees or instrumental variables lead to results that differ in size and statistical significance in terms of the average treatment effect and that lead to conflicting policy recommendations on educational reform. An attempt to address this problem was made in de Haan (2011), who studied the nonparametric bounds on the average treatment effect and relied on weaker nonparametric assumptions that have clear economic interpretations. Nevertheless, these assumptions may and should be challenged. The present paper discusses the validity and the importance of these assumptions. Moreover, this paper presents a method that allows some assumptions to be relaxed and an examination of how fragile or robust the reported bounds are to some mild violations of these assumptions. This paper also looks at how missing data may affect the results, and it imposes no structure on the missingness mechanism. Knowing what drives the results, and which assumptions are important, may sharpen the discussion about the underlying identifying assumptions, and also that about the economic problem at hand.

This paper presents a method of calculating sharp bounds on the average treatment effect using linear programming under identifying assumptions commonly used in the literature. This new method provides a sensitivity analysis of the identifying assumptions and missing data in an application regarding the effect of parent's schooling on children's schooling. Even a mild departure from identifying assumptions may substantially widen the bounds on average treatment effects. The sensitivity analysis provides insights into the determinants of the identification. The linear programming formulation helps to clarify why one presumably irrelevant identifying assumption becomes important once another assumption is relaxed, and therefore, the two assumptions work as substitutes for each other. Allowing for a small fraction of the data to be missing also has a large impact on the results. Realistic relaxations of identifying assumptions double the upper bound on the effect of mother's college increase on the probability that a child finishes college.

Low-skilled jobs and student jobs: Employers' preferences in Slovakia

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Massification of tertiary education has led to a growing share of student workers on labour market. While the underlying reasons for the expansion of student employment might vary, they are said to result in similar consequences on the labour market, i.e. a crowding out of the less educated workers, particularly the older ones. Acceptance of the crowding out theory is far from universal, however. Relatedly, existing academic literature and empirical studies offer relatively general findings about student labour market and typically position it in low-skilled labour market segment and in flexible forms of contractual arrangements.

In this paper we therefore study patterns of student employment and preferences of employers in low-skilled jobs and student jobs. We take labour market demand perspective and analyze job offers posted online and gathered by a major job portal in Slovakia called Profesia between 2009 and June 2014. Slovakia is a useful case for such analysis due to rapid growth of tertiary education combined (still) with relatively high premia on university degree, but also high unemployment rate, especially of low skilled workers. The analysis is based on a two-fold approach to defining student jobs: we classify and measure student vacancies as a) job offers directly aimed at students based on educational requirements stated in the job offer and internship offers, and b) as job offers proposing flexible types of contracts, i.e. temporary or part-time contracts.

Empirical analysis is composed of three parts: descriptive analysis of full sample of vacancies; regression analysis of determinants of 'studentness' of job offers; and a focused analysis of selected low-skilled positions to map the characteristics of low-skilled segment of the labour market from the perspective of student employment. Data from several years also enable us to study the role of the economic downturn on the growth of student job offers.

We find that the vast majority of advertised job offers are non-student vacancies. However, a clear trend of the growth of student job offers is evident over time. Significantly, this trend is driven both by the growth of jobs and offers directly targeting students, as well as by the increase in offers based on flexible contractual contracts. Hence, there are many similarities between student job market and 'flexible' job market and most student vacancies exist in the service sectors, as suggested by earlier works.

We generate a number of new findings. First, student labour market is distinct in lower level of demand but does not appear to be concentrated solely to the least skilled and most precarious segments of the labour market. Student workers' labour market clearly extends beyond the least skilled segment of the labour market where no qualifications or skills are needed. Second, our findings seem to support 'complementarity view' on the co-existence of student employment and low-skilled employment rather than crowding out. Younger workers might be in advantage in some specific positions, especially those requiring good language proficiency and advertised for foreign labour markets which require relocation. They however are not taking over low-skilled labour market. Low-educated workers and student workers do not compete for the limited number of positions, but rather fill employers' demands for different types of hard (e.g. language skills) and soft (e.g. flexibility, adaptability) skills. Third, the analysis also shows that opportunities for students seem to grow during a crisis and rising unemployment levels.

Some policy implications emerge. On the one hand, our findings suggest that labour markets more generally can be 'greased' by student employment by increasing flexibility and filling in specific skill gaps related to soft skills, in particular. However, on the other hand, it also calls for caution and a need to ensure decent and fair working conditions for young workers who might be entering flexible forms of employment due to necessity rather than pure choice. Further research is required into whether precarious student employment leads to precarious job placements after graduation.

Inter-Industry Wage Differentials: Micro-Level Evidence from Slovakia

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This paper will examine the inter-industry wage differentials by different regions and education levels in Slovakia. The methodology adopted to estimate inter-industry wage differentials will be consistent with that of Krueger and Summers (1998). The analysis will utilize the "Information system on the price of labour ISCP" dataset, which is collected by a private consulting company Trexima on behalf of the Slovak Ministry of Labour.

How immigration grease is affected by economic, institutional and policy contexts: evidence from EU labor markets

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Theoretical arguments and previous country-level evidence indicate that immigrants are more fluid than the natives in responding to changing labor shortages across countries, skill-groups or industries. The diversity across EU member states enables us to test this hypothesis across various institutional, economic and policy contexts. Drawing on the EU LFS and EU SILC datasets we study the relationship between residual wage premia as a measure of labor shortages in different skill-industry-country cells and the shares of migrants and natives working in these cells. We find that immigrants' responsiveness to labor market shortages exceeds that of the natives in the EU15, in particular in member states with higher unemployment rates, larger (recent) immigration, and more open immigration and integration policies; but also those with barriers to citizenship acquisition or family reunification. Whereas higher welfare expenditures seem to exert a lock-in effect, a comparison across different types of welfare states indicates that institutional complementarities neutralize such effect.

Session VI, Stream A: Finance

Sentiment and blue-chip returns. Firm level evidence from a dynamic threshold model

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The higher impact of sentiment on small and young companies due to higher transaction and information costs is a generally agreed notion. In contrast, the paper is focused on the relationship between sentiment and blue-chip stocks. The author contributes with the proposal of theoretical background that blue-chip stocks can reflect sentiment in periods of occasional excessive social activity despite the existence of smart-money investors. The author employs the appropriate empirical methods,

specifically dynamic threshold model, to analyze such a relationship because standard regression is not appropriate. In addition, the paper contribution is the employment of unique data of Facebook activity as a sentiment gauge. Overall, the author finds the high level of social activity connected with negative sentiment with inverse but occasional influence at stock price returns.

Market Risk of Investments into Metals, Currencies or European Market Indices

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In this paper Value at Risk (VaR) is used to analyze the market risk associated with investments in foreign exchange rates, metals and European market indices. Using combinations of these assets we create portfolios and we determine risk of the individual assets and portfolio risk. One-day-ahead VaR forecasts are computed with different risk models as parametric VaR, the filtered Historical Simulation approach and Monte Carlo simulation. VaR of the portfolios will be computed using copula methodology. All risk models are evaluated in Wolfram Mathematica software and compared based on Kupiec test. The economic importance of the results is assessed by daily capital charges under Basel Accord rule. The best approaches for estimating the VaR are discussed.

Determinants of the Insurance Demand: Evidence from Slovak Republic

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Insurance industry is a dynamic part of the economy that must constantly reflect the change in needs of potential clients. Therefore, knowledge who is the potential client is essential requirement of the success of any insurance company which is trying to bring the tailor-made insurance offer. Similarly, because of the predominance of the supply-side in the insurance market, the proposed offer of the insurance should meet the expectations of consumers themselves and their current needs.

The individual's demand for both life and non-life insurance is linked to various characteristics. Previous research identified a variety of demographic, socio-economic and financial determinants associated with the insurance demand. The majority of these papers are focused mainly on life insurance, where the individual person represents the significant element in the insurance decision-making. However, the non-life insurance is slightly complicated, because the demand reflects also needs of governments, companies, NGO's and moreover there is also an obligation to buy policy in some specific situations.

The main aim of the paper is to identify consumer of life and non-life insurance in Slovakia through personal, demographic and financial characteristics of individuals. We use the method of logistic regression, which allows us to identify the key characteristics of insurance consumers and their impact. We point to the fact that there are differences in the characteristics that indicate interest of individuals in insurance protection. Sample used in analysis consist of nearly 900 respondents of the questionnaire survey. Our results can be used by insurers not only to select the appropriate strategy for segmentation of customers, but also to the effective utilization of resources for distribution channels and marketing.

Online Dispute Resolution: Suggestions for Future Research in the Context of B2B E-commerce

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The globalization of economic activities and widespread availability of Internet access across the world resulted in e-commerce. The overwhelming share of e-commerce revenue represents transactions between enterprises and it is expected that they now growing steadily, poised for significant growth. This has led to an increase in the number of disputes arising from B2B e-commerce. The traditional judicial procedure is slow, expensive, and difficult to deal with, so other ways of dispute resolution have been searched. One possibility suitable for online transactions is Online Dispute Resolution (ODR). The aim of my paper is to highlight the importance of ODR development for B2B e-commerce and based on previously conducted research to reveal gaps in the research and also identify possible areas for further research in the context of B2B e-commerce which I want to deal with in my doctoral thesis. Thank you for your advice and recommendations, it can improve my future research.

On the taxation of real-time spectrum secondary markets in cognitive radio networks

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In cognitive radio networks, one key feature is to establish viable spectrum trading platform, where would the primary users (PUs) (e.g. operators) and secondary users (SUs) (e.g. consumers) negotiate about the spectrum availability, quality and finally the price over very short time scale. The available literature has emphasized the importance of the existence of the real-time spectrum secondary markets to achieve higher spectrum granularity and utilization. Thus far, a number of studies have analysed the efficiency of the different real-time spectrum secondary markets with the prevailing focus paid on the analysis of various spectrum pricing strategies. However, it has commonly been assumed that no regulator (e.g state) is involved in the process of the spectrum trading. Regulator can influence the profitability of the spectrum markets and amount of the spectrum trading activities by rising the direct and indirect taxes. This paper attempts to show the effect of the different taxes (including Value-added tax (VAT) and Corporate tax) on the spectrum trading activities. For this purpose, the traditional Laffer curves to evaluate the tax revenue of the real-time spectrum secondary market are considered.

Session VI, Stream B: Business Economics and Finance

Online Sustainability Reporting: The Use of YouTube in Western European Municipalities

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There is a growing trend of social media usage by local governments. The rapid evolution of Information and Communication Technologies (ICTs) has forced entities to adapt quickly and consider the most effective ways of communication which led to reforms in communication strategies not only of companies but also public administration authorities as they are accountable to citizens and society at large. The increase in a technological readiness of the population was one of the factors that caused higher demand for E-government participation. In addition, communication via the Internet is cost saving and it allows for richer, more interactive displays than traditional print media. It also facilitates timely information disclosure, which are the most important attributes, thus making it a valuable tool for increasing the transparency and accountability on various issues (e.g. environmental, social). There has been a rapid

increase of E-government support by the European Union and the United States of America, especially due to the Open Government Initiative in 2009 which has led to overall changes in governmental communication and transparency. Thus, many local governments have started to use the Internet and Social Media (SM) to communicate with the citizens. As a result of that, the SM such as Facebook, Twitter, LinkedIn, YouTube, and so forth have been widely used and incorporated into the communication strategy by public sector. However, this usage is still somehow limited and according to previous research in this area, incorporating SM into the communication process of municipalities, government-to-citizens (G2C) relationships should become more deliberative and dialogic.

Municipalities play an important role in the society as they directly affect the everyday lives of citizens regarding the administration and service delivery. Therefore, the way how they communicate and engage with citizens is crucial and further research regarding the role that SM play in public administration is needed. As little is known about E-government disclosure via YouTube, therefore, it is worthwhile to extend the earlier Web 2.0 disclosure research in public sector to examine this phenomena.

Hence, the main objective of this paper is to provide a general overview of YouTube usage by Western European municipalities and to answer the following research questions: (1) To what extent do Western European local governments use YouTube? (2) What is the prevalent content type? (3) Does Public Administration Style influence the prevalent content type? (4) What factors influence the activity of the municipality on YouTube? (5) What factors influence the audience (number of channel views) of the municipality on YouTube? (6) What factors influence the number of subscribers? (7) Does a specific content type lead to higher audience (number of video views)?

Social media platforms offer numerous opportunities to interact with a wide range of different stakeholders groups and they are ranked third among the preferred communication tools by citizens, administration and politicians after the e-mails and municipalities‘ websites.

Hence, the effective local governments‘ communication necessarily includes digital communication via various SM platforms. One of the advantages of SM is that it enables municipalities to reach a wider audience and different groups of stakeholders, and they can make the relationship between a local government and its citizens and other stakeholders more direct, dynamic, and potentially interactive.

YouTube seems to be an interesting platform for citizens‘ engagement since it deals with social video. From a psychological point of view, video is a powerful medium because of its combination of sight, sound, motion, and emotion reaching our senses and psyche. Considering the added layer of richness the medium of video provides in comparison to other disclosure tools, it can be more engaging than other media types (text, photo), making its use for E-government participation an interesting field for research.

For the purposes of this study the data of 75 Western European municipalities across 15 countries belonging to four different public administration styles (Anglo-Saxon, Nordic, Germanic, Napoleonic) were collected. We checked whether these local governments maintain an official YouTube channel and we analysed 30 videos from each channel and coded them into 16 content types (e.g. cultural activities, city promotion). In addition, we measured the activity, audience, and the number of subscribers of each municipality channel and aimed to determine the factors influencing these measures. We have also analysed whether a particular content type leads to higher video views, thus, to higher audience, which might be considered the first step towards citizens‘ engagement.

Our findings show that particular content types such as cultural activities, and city‘s promotion are the most widely used by Western European local governments. Additionally, it has also been found that these content types together with videos about citizen‘s protection seem to be the most relevant for the audience. Moreover, a strong influence of public administration style was found in terms of prevalent video content type, activity, audience, and the number of subscribers of the YouTube channel. Besides the public administration style influence, the activity, audience, and the number of subscribers seem to depend on municipality characteristics such as number of inhabitants, E-gov Offer, and E-gov 2.0 Offer. It is worth noting that solely having a YouTube channel will not increase awareness or trigger citizens‘ participation. Instead careful planning and clear G2C communication strategy is needed.

To our best knowledge, this is the first study exploring the potential of YouTube

as a media for municipalities and their citizens' engagement. We provide a general overview of YouTube usage by Western European local governments by offering insights regarding the differences of its usage due to the public administration style, and factors influencing the activity, number of subscribers and audience. Thus, we believe that our paper has implications for both research and practice.

Methodological challenges in the application of the principle of proportionality in water management

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The growing demand for clean water has led to the adoption of the EU Water Framework Directive (Directive 2000/60 EC; WFD). The new legislation has had a major impact on water management and national economies and instituted numerous requirements, including "good status" of all water bodies by 2015. However, achieving "good status" is associated with large investments, often beyond the capabilities of polluters. In justified cases, member states may request an extension of the deadline based on disproportionality of the costs of meeting the WFD requirements. The paper summarises approaches used abroad, critically sets boundaries for application of exemptions, and describes the component steps of the cost-benefit analysis for assessing proportionality of costs of achieving good status. In addition, the paper points out the methodological complications of economic analyses based on the neoclassical approaches – cost-effectiveness analysis and cost-benefit analysis.

Local price competition: Evidence from the Czech retail gasoline market

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We analyze the effect of local competition on prices in the retail gasoline market in the Czech Republic. Our analysis suggests that spatial clustering of gas stations of the same brand increases the equilibrium prices. Using a flexible measure of local density, we also find that the number of competing stations in the proximity of a station reduces its price and that the effect fades out with the distance.

Bribery, CEO, Ownership and Firm Efficiency

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In this study, we explore the multiple levels of effect of bribery and corruption on efficiency to comprehensively test the theoretical predictions set forth by both the economic and sociological theories using a unique dataset that overcomes data limitations and methodological deficiencies in previous studies.

Combining the Business Environment and Enterprise Performance Survey (BEEPS) which is part of the World Bank Enterprise Survey (WBS) with the Bureau van Dijk's Amadeus database, we create a sample consisting of firm-level financial, ownership, and CEO characteristics data, country level institutional data, and local bribery data which is constructed by country, industry, firm size, and urban population size. The final dataset contains more than 80,000 firm level observations for 25 countries from 1999 to 2015. Svensson (2005) highlights the BEEPS data as an important data source on bribery but notes that it is widely under-utilized. The advantage of the database is that they provide "hard evidence on corruption" (page 23) and that studying corruption across countries helps alleviate some of the concerns regarding the measurement

problem of the survey data. To this day however this survey remains the most granular data on bribery at the firm level but is only available for transition countries.

Preliminary results suggest that probability of majority foreign ownership decreases with the bribery severity to conduct business. When foreign majority owners operate in severe bribery environments, they operate their companies in more efficient ways in order to be able to compete. When there is a high uniform bribery "toll" in a business environment, female CEOs run companies more efficiently. But when auctioning bribery characteristics are pronounced in an environment, female CEOs do not run companies more efficiently. This can be explained by social norms. Women are more adaptable to social norms so if the social norm is to bribe, women bribe. But if it isn't, then they don't bribe.

Measuring the frequency dynamics of financial and macroeconomic connectedness

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Economic markets grew in the size and became intertwined during last decades in an unprecedented fashion. With this surge, the importance of evaluating connections among different parts of markets grew, and understanding financial and macroeconomic connectedness became central to many areas of research as risk management, portfolio allocation and business-cycle analysis. Academics being painfully aware of the unsuitability of the standard correlation-based measures have concentrated on the development of more general frameworks overseeing the actual sources of connectedness. In this work, we argue that frequency dynamics of the connectedness is crucial to understand, as shocks to economic activity impact variables at different frequencies with different strength. To measure the long-term, medium-term, and short-term effects, we propose a general framework for measurement of frequency dependent connectedness in economic variables in stationary and co-integrated cases.

We hypothesize that the evolution of markets not only caused the change in magnitude of connections, but also change in the structure of the markets and their connections. In the stock markets, structural changes due to phenomena such as algorithmic trading or high-frequency trading which changed the focus to very short-time interactions between markets that no human was, is, or ever will be able to contain, may stay hidden within the current measures. Another important area of research calling for disaggregation is macroeconomics, which observes strong co-movements in macroeconomic aggregates, but important stylized facts about structure of connectedness at different frequencies stay hidden. Beyond the two leading examples, interest in distinguishing between connections at different frequencies is growing in many other areas of research.

The distinction between short-term and long-term parts of systems became evident with the dawn of co-integration (Engle and Granger, 1987). Assuming and levering co-integration in the system, subsequent literature builds a preliminary notion of disentangling frequencies in connectedness (Gonzalo and Ng, 2001; Blanchard and Quah, 1989; Quah, 1992). Given the decomposition to the long-term common stochastic trend and deviations from trend, one can move the projection in such a way that error to one series will be a shock to long-term trend and the other will be a shock to the deviation from the trend. A shock with strong long run effect will have high power at low frequencies, and in case it transmits to other variables, it points to long run connectedness. For example, in case of stock markets, low frequency spillovers may be attributed to permanent changes in expectations about future dividends (Balke and Wohar, 2002). While low frequency spillovers are documented by the literature, connectedness at business cycle frequencies, or even short-run frequencies are not. Hence we address this urgent call by proposing a general framework for decomposing the connectedness to the frequency band of interest. Similarly to Dew-Becker and Giglio (2013), who set asset pricing into the frequency domain, we view the frequency domain as a natural place for measuring the connectedness between economic variables.

As noted by Diebold and Yilmaz (2009, 2012), and later Diebold and Yilmaz (2014), variance decompositions from approximating models are convenient framework for empirical measurement of connectedness. Precisely, Diebold and Yilmaz (2009, 2012) define the measures based on assessing shares of forecast error variation in one variable due to shock arising in another variable in the system. This approach quickly became popular and recognized by researchers due to its universality. While with varying forecast horizon, one can get a notion of long-run and short-run connectedness to some extent, the precise effects of shocks at frequencies of interest can not be measured. To see the importance of frequencies in the measurement, we borrow an example from simulation section of this paper, where we show origins of connectedness from different frequencies by varying autoregressive coefficients of bivariate process. Setting coefficients driving the autocorrelation effect at the first lag to 0.9, and coefficients driving the cross-effects between variables to 0.09 creates the theoretical connectedness of 40.5, with dependence created at low frequencies. The dependence structure with negative signs of coefficients will create equal connectedness with value 40.5, but this time the dependence is created solely at high frequencies. While variance decompositions from both example processes point to the equal connectedness, the processes in two examples are connected through very distinct channels, as the connectedness is being created at different parts of cross-spectral density.

Instead of assessing shares of forecast error variation in one variable due to shock arising in another variable, we are interested in assessing shares of forecast error variation in one variable at various frequencies, weighted by its energy. This is a natural step to take, as it will show the long-run, medium-run, and short-run impacts of a shock, which can conveniently be summed to total aggregate effect. For the the purpose of frequency dependent measurement, we define spectral representation of generalized forecast error variance decomposition, and hence the spectral counterpart of the connectedness measures. Turning our attention to frequency domain, we will simply be interested in the portion of the spectrum as counterpart of variance at given frequency that is attributed to shocks in another variable.

In addition to introducing the frequency dynamics into the measurement of connectedness, we also study the impact of cross-sectional correlations, as higher contemporaneous correlation does not necessarily need to indicate connectedness in a sense literature tries to measure it. A good example is the recent crisis of 2007—2008, when stock markets recorded strong cross-sectional correlations biasing the contagion effects estimated by many researchers (Forbes and Rigobon, 2002; Bekaert et al., 2005). Cross-sectional correlation appears at all frequencies equally, and is even more important to understand when measuring connectedness in frequency domain. To obtain the true causality in frequencies, we propose to estimate the frequency dependent connectedness measure with covariance matrix of residuals adjusted for cross-sectional dependence. Hence in addition to frequency dynamics, we also disentangle the effect of contemporaneous correlations, and obtain all sources of connectedness between variables.

Two relevant applications help us to show the usefulness of the proposed framework.

Session VI, Stream C: Labor

Impact of working students on the labour market in the context of tertiary education massification

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The paper examines patterns of tertiary students employment in order to understand the character of temporary mismatch of student workers. The main theoretical concept used is that of crowding out − the notion of replacement of workers with lower educational attainment by better educated workers taking up jobs, for which they are overqualified. The literature commonly mentions college students working in very flexible jobs in the service sector, particularly in the hospitality and retail industries, as an example of the low skilled workers being squeezed out of the labor market. (Autor and Dorn, 2009; Cedefop, 2008; Manning, 2004; Maselli, 2012; Mayer and Solga, 2008) . Nonetheless, we show through empirical analysis of the EU Labour Force Survey data the student workers are a very heterogenous group and are not normally in direct competition with the low educated workers. Rather, the structure of student work is more akin to workers with high school diploma in terms of complexity of jobs and distribution between industries. Furthermore, student work has a character of its own manifested in a bias for flexible employment arrangements. This differences between working patters of students and non-students have been linked with skill mismatches between the two groups, making them non-substitutable on the labour market (Eichhorst et al. (2013)).

Early education: an equalizing policy, prone to Matthew effects? A cross-country analysis

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This paper asks the question whether pre-primary education is associated with age 15 score point gains that reduce socio-economic achievement gaps.

The literature on early education highlights the huge potential of this policy to equalize educational opportunity via improving the skills of disadvantaged children. At the level of international policy discourse, this policy has been singled out as being both equitable and efficient. However, the findings in the literature come predominantly from countries with a liberal welfare states and are mostly mean treatment effects of targeted programs. So far only a few studies have explicitly analysed the distribution of early education program impacts by socioeconomic background, with somewhat mixed findings. Little is known about the system level distributional impact of early education policies and of the links between the internationally diverse early education governance arrangements to these distributional impacts.

This paper looks at age 15 score point gains associated with preprimary attendance by quartiles of socioeconomic background, relying on the OECD PISA 2012 dataset, using information on 40, mostly Western developed countries. It employs within-country regressions with standardized PISA achievement scores and socio-economic background information, to generate cross-country comparable data that also allows for a role of country-level institutional and policy factors, without explicitly incorporating them into the analysis. Distributional effects of preprimary attendance are identified on the basis of interaction of preprimary attendance with the OECD ESCS index of socioeconomic background. This way, the paper looks at correlational findings, which represent net skill outcomes of whole education systems, jointly impacted by a set of policy, institutional and cultural factors. Selection into early education on the basis of observable student characteristics is described, decomposition analysis and structural equation modelling is used to further characterize the findings.

The findings indicate that it is much more common to find a lack of an equalizing impact of early education on the age 15 socioeconomic achievement gap across the countries in the analysis than to identify a significant equalizing impact. Moreover, there is a distinct set of countries (Baltic countries, USA and Switzerland), where there appears to be no significant link between age 15 skills and preprimary attendance in the bottom quartile of the socioeconomic distribution. The equalizing or stratifying impact of early education attendance on the socioeconomic achievement gap is not fully explained by the inclusivity of the early education system. Neither can the observed patterns be explained by the characteristics of schools attended by students at the age of 15, or easily ascribed to individual country-level education policy features such as early ability tracking, levels of funding or features of school choice.

The cross-country heterogeneity of the results underlines a significant role for public policies in producing these patterns, indicating that the equalizing potential of early education highlighted by evaluation studies is not fully exploited in several countries. The observed empirical patterns can be due to three factors, individually or jointly at play: to the selection into pre-primary and later education, to the uneven quality of preprimary and later education serving children from different socio-economic backgrounds and to a relative, rather than absolute equalizing impact of pre-primary education.

Indeed, differences in early education systems are large and potentially relevant for policy impacts, encompassing a different balance between public and private roles in service provision and financing, different approaches to the early chidlhood curriculum (school readiness versus social pedagogical curricula) and different ways of ensuring quality service provision (for example, large groups with highly qualified caregivers in some countries versus small groups and lower qualified caregivers in others). The wider policy context, including the different wider institutional characteristics of social democratic, conservative and southern welfare states can also be relevant for the system level distributional impacts of early education on skills.

This paper is the first part of an exploratory sequential mixed methods research project. The quantitative findings in this paper will be matched to qualitative education policy information employing fuzzy set qualitative comparative analysis, to identify the configuration of education policies associated with the empirical patterns observed in this paper.

Income inequality and economic growth in crisis times: inequality spillovers under focus

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The aim of our paper is to explore the direct and indirect effects of income inequality on the growth of EU countries. Following the latest discussion on the role of inequality particularly in the global economic and financial crisis, we limit our analysis to the years 2005-2013. The paper aspires to be novel in several aspects: First, it concentrates on the sample of EU-27 countries. Second, it applies latest techniques of spatial panel estimation what allows us to account for spillover effects exerted by income inequality. Third, our model proves also existence of human capital spillovers which the literature seems to address scarcely. The article is structured as follows: After the Introduction, we display the current state-of-the-art. Then, we present the theoretical model and its empirical specification. The fourth section of the paper describes how we derive and organize our dataset. Fifth section is devoted to the estimation results and sixth to the robustness checks. The final seventh section summarizes the key findings of the paper.

International migration and well-being

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Introduction

The theory predicts that people decide to move to improve their current situation. The literature confirms the important role of economic, geographic, cultural and political factors on the individual migration decision. Arguably there are other important factors contributing to the progress of nations which may also influence the destination choices of immigrants. It is therefore an empirical question whether the aggregate migration flows are sensitive to the indicators of the quality of life that go beyond the traditional measure of economic development. In this paper we estimate the traditional models of bilateral migration to show that the aggregate levels of self-reported subjective well-being (SWB) have significant power to predict the migration flows. Our findings are consistent with literature and imply that countries with the low levels of (income-adjusted) SWB are characterized by the higher outflow of people. The effect of SWB as a pull factor is however not robust to all model specifications.

Literature review

Several studies show the connection between well-being levels and migration flows. Pacheco, Rossouw, and Lewer (2013) analyze the role non-economic factors on immigration to 16 OECD countries. Using two different measures, (i) index based on the objective welfare measures and (ii) the average level of SWB, they conclude that the quality of life shapes the immigration to OECD. Blanchflower et al. (2007) and Blanchflower & Shadforth (2009) show that after 2004 more immigrants from new EU Member states arrived to the UK from countries characterized by lower SWB levels. An important finding is that immigrants can potentially benefit from the higher levels of SWB in the destination. Safi (2010) uses World Value Survey to document that the SWB levels of immigrants are positively correlated with the average SWB in the destination.

The role of SWB is also confirmed by scholars who analyze the individual migration decisions. Otraschenko and Popova (2014) convincingly show that lower individual

SWB can predict individual intention to move abroad. Mara and Landesmann (2013) arrive to the same conclusion when studying the Romanian immigrants in Italy and Graham & Markowitz (2011) confirms the result in the sample from 18 Latin American countries.

Estimation model

In this paper we employ the pseudo-gravity model used by Adsera and Pytlíková (2012):

log(Mijt/Pit)=+(GDP,U)+SWBit+SWBjt+Z++ijt (1)

where M is the number immigrants moving from the country of origin i to the country of destination j at the period t and P is the population size. The size of migration flow depends on the difference in the employment conditions between origin and destination. The model includes unemployment rate (U) in destination and origin, and the real PPP adjusted GDP per capita (GDP) to proxy for wage opportunities. As suggested by Hatton & Williamson (2008), GDP takes the logarithmic form and enters in the quadratic form for the country of origin and in the linear form for the country of destination. In addition the model includes the standard set of push and pull factors (Z) such as the stock of immigrants from origin i residing in the destination j relative to the population in origin; institutional variables (such as policy freedom index; indicator for former colony ties; language proximity) and the costs of migration approximated by distance. Model includes the rich structure of geographic fixed effects () to control for unobserved characteristics.

The SWB variables capture the non-economic determinants of bilateral migration flow (for overview see e.g. Dolan et al., 2008). We experiment with two specifications. First we add (raw) average SWB into model (1) in the quadratic form to account for nonlinearities discovered by Polgreen and Simpson (2011). Second we estimated model (1) with the income-adjusted SWB, that means the part of well-being not attributed to the GDP.

One problem with the model estimation of this type is that the global bilateral migration data contains the high share of zero flow observations (the final sample used in the analysis contains 69 % of zero flows). We therefore apply two-stage regression approach (Heckman, 1970) also used by Beine, Docquier, and Özden (2011) to correctly estimate the model.

Data

The empirical analysis is based on the recently published dataset of global bilateral migration flows that covers four five-year periods between 1990 and 2010 (Abel, 2015). Data on the average level of SWB are obtained from World Value Survey. Other economic variables are collected from public sources (e.g. WorldBank databank, Freedom House).

Results

The preliminary results are presented in Table 1 and the estimated effects of all variables are consistent with literature. Our preferred specification is obtained from two-stage estimation. The estimated effect on the SWB in the origin is negative meaning that the low level of SWB pushes people out of the country. This result is consistent across different specifications. However the role of SWB as a pull factor in the destination is not unambiguously confirmed. Results obtained from models including the income-adjusted SWB follows the similar pattern. This result is strong because in this specification the SWB conveys the information about the quality of life that is not influenced by the economic development.

Findings imply that the lower quality of life leads to the higher outflows. The effect of income-adjusted SWB in the destination is not significant in all specifications and rather depends on the structure of fixed effects.

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